NEW REMEDIES.

THERAPEUTICS.

DIFFERENCE IN THE EFFECTS OF ETHER AND CHLOROFORM.

Dr. Schiff says that in the use of chloroform, as also in ether, we notice palsy of the consciousness, of the voluntary muscles, and of respiration and of movements of the heart and motor muscles. The two first order of phenomena take place invariably with either of these anæsthetics. The third phenomenon—that is, paralysis of respiration—is produced by ether, whilst the circulation and the pressure of blood are still compatible with the prolongation of life. Sometimes the vascular pressure is lessened, at others, again, when the respiration commences to quicken, the pressure augments, as takes place by the accumulation of carbonic acid in the blood; but artificial respiration always finds the blood with a sufficiently high pressure, by means of which the change between the oxygen of the air and the carbonic acid takes place. It is only after the paralysis of respiration that there occurs with ether the paralysis of the circulation, and then the paralysis of the heart, which is, however, never seen in mammifera, because, in general, death takes place so rapidly after paralysis of the circulation. Under the action of chloroform, again, respiratory paralysis does not always precede the palsy of circulation, but in many individuals a proportion of this anæsthetic agent, insufficient to cause palsy of respiration, may produce palsy of circulation. In this case, and when the paralysis of circulation is far advanced and has lasted for a certain

time, which frequently is less than half a minute, artificial respiration is inefficacious, because, on account of the diminished pressure of blood, the change of gases cannot take place. Indeed, on making, immediately after the completion of anæsthesia, artificial respiration by means of tracheotomy, and making the canula communicate with a Wolf's bottle containing chloroform, through which air passes before arriving at the aperture of the trachea, it may easily be seen with a manometer put in communication with the carotid or crural artery, that the vascular pressure falls rapidly.—*L'Imparziale*, No. 6, 1874.

The general conclusions arrived at by the Chloroform Committee of the Royal Medical and Chirurgical Society of London, regarding the effects of ether and chloroform on the circulation and respiration, are as follows:

Ether Inhalation.	Chloroform Inhalation.
(1) *The Heart.*	
The muscular movement is but little influenced. The first or stimulating effect is less sudden and more sustained. Even after insensibility is attained, its action is more vigorous. Ether may be considered in a certain degree as a stimulant to the heart's action. The mercury of the hæmadynamometer at first is absolutely raised, never falling until the respirations cease.	The heart is at first stimulated and its contractive force augmented; but after this its action is depressed; and although the respirations go on properly, its action, as shown by the hæmadynamometer, when connected with the circulation of the animal, fails, and the mercury falls.
(2) *Respiration.*	
With strong inhalation there is a temporary arrest of respiration, but it is less marked than with chloroform. With small quantities there is no arrest of the breathing, although the number and depth of the respiratory efforts are diminished. After a short time the respirations become full and slow; and next, while their frequency rises, the range of their movements is reduced.	With strong inhalation there is a temporary arrest of respiration dependent on spasm. This arrest, after a few seconds, ceases, and inhalation can again take place. With smaller quantities the inspirations become gradually shallower, and for a time retain their natural order, but become less frequent, and after perfect insensibility is produced the amount of air entering the chest is extremely small.
(3) *How Life is Arrested.*	
The effects produced in a strong quantity equalled those of chloroform in a small, but with an important contrast, that it exerted but very slight depressing influence on the heart. Death occurred by failure of respiratory movements, the heart's pulsations continuing generally for some time after the respiration had ceased.	Strong inhalation caused the pulse and respirations to cease nearly simultaneously. In the majority of cases the pulse stopped before the respiration, and the heart's action could be distinguished for some time after the pulse had ceased.

The main points brought out here are, that the effect of chloroform is primarily upon the circulatory system, that of ether upon the respiratory. These conclusions Professor Schiff's investigations corroborate; but he makes important additions to them. He says that even when etherization is pushed to such an extreme that the respiratory movements cease, life is, notwithstanding, never menaced if artificial respiration be at once employed. Chloroform, on the other hand, acts primarily and specially upon the vaso-motor nerves both of the heart and blood-vessels, so that the pressure of the blood within them is speedily lowered, whereas, in the administration of ether, it is never very materially diminished, and often increased. Both ether and chloroform, when pushed to the extreme, paralyze (1) the respiratory movements, (2) the vaso-motor nerves in general, (3) those of the heart; but ether invariably produces its effects in this order, while in the case of chloroform the order varies. And even when respiration ceases first, and the administration of chloroform is stopped, and artificial respiration employed with apparent success, the temporarily re-established respiratory movements may again cease, and death ensue, owing to the disturbance of the circulatory system. This, Professor Schiff states, is never the case with ether; for if the respiratory movements be once re-established by artificial means after this agent has caused their cessation, they always become more frequent when the animal is left to itself. From the results of his experiments, Professor Schiff goes so far as to say that in the present state of science every medical man is responsible for every case of death occasioned by the administration of ether, since he can prevent death if he carefully watches the respirations; but this is not the case with chloroform, as its fatal effects vary with idiosyncrasies which the physician is unable to recognize.—*The Lancet.*

Ether as an Anthelmintic.—Prof. Vegel announces a new application of this anæsthetic, namely, the destruction of tape-worms. The ether is enclosed in a gelatine capsule and swallowed. It soon becomes vaporized in the stomach, (?) and the worm, then becoming stupefied, is easily removed by any of the usual remedies, against which, when awake, it offers strong resistance.—*Journal of Applied Chemistry*, August, 1874.

Two Cases of Anæsthetization during Sleep.—"Having read in the April number of your journal an article entitled, 'Can a Person be Anæsthetized during Sleep?' it occurred to me that a brief report of two cases of successful chloroformization during sleep might prove interesting.

"The first case was that of a little girl named Parsons, aged eight years. As a sequel to acute otitis media, the mastoid cells of one side became inflamed; and Dr. E. M. Curtis was invited to take charge of the little sufferer.

"Deeming it expedient to operate for the evacuation of the pus as soon as convenient, we agreed to meet at nine o'clock of the following morning for this purpose. On our arrival, we learned that the patient had slept but little during the night, but was then sleeping sweetly. Chloroform was at once administered upon a four-by-six piece of surgeon's lint, held as near the child's mouth as possible without coming in actual contact. Not the slightest effort was made by the child to avoid the inhalation of the anæsthetic, and in a few moments she was well under its influence, and was immediately carried into an adjoining room and placed upon a lounge, where the doctor very soon completed the operation.

"The child being still anæsthetized, the wound was dressed, and before she had fully gained consciousness, we both left the room, having first given proper instructions to the parents. On making my evening visit, I was informed that my patient was not yet aware that she had undergone a severe surgical operation, or that either Dr. Curtis or myself had visited her on that day.

"My second case occurred on the 15th inst., in the person of a little girl two and a half years old, named Drake, brought to me from Galena, Nevada, for the purpose of having a supernumerary toe removed from each of her feet. While waiting for the arrival of Dr. Nelson, who assisted me in the operation, the child fell asleep and was placed in the operating-chair. As soon as the doctor arrived, chloroform was administered in the manner already detailed in the former case, and with equal success, and the operation was soon completed without the occurrence of an unfavorable circumstance.

"In the first case the condition of the child probably favored the ready induction of anæsthesia, while in the second age alone could be supposed to have influenced the result."—Dr. R. W. Cluness, in *Pacific Med. and Sur. Jour.*

THE TREATMENT OF PHTHISIS BY THE PHOSPHATE OF LIME AND THE JUICE OF RAW MEAT.

(*The Lancet*, June 13, 1874.)

Dr. Henry Blanc has found by extended experience that in severe cases of phthisis no remedies are more valuable than the juice of raw meat and the phosphate of lime, when they are administered in a form

suitable to the patient and to the disease. The syrup of lacto-phosphate of lime is well tolerated at first, but after a while induces dyspepsia, nausea, and somnolence. The solution of chlorhydro-phosphate is not grateful to the patient, but it is well tolerated by those who overcome their dislike to the rough acid taste of the drug, and has given very good results. Under whatever form the phosphate of lime may be prescribed, it should always be taken at meals.

The meat-juice should be prepared in the following manner: A pound to a pound and a half of fresh beef, deprived of fat, bones, etc., is placed over a quick fire for a few minutes, in order to whiten and harden the external surface only; the piece of meat is then cut into two or three pieces corresponding to the size of the meat-press, and all the juice is extracted by the pressure of the powerful screw. The superficial coction is necessary to overcome the elasticity of the meat, which renders the extraction of the juice a very difficult matter, unless more powerful machines be used than the simple one at present required. A pound and a half of good fresh meat gives a teacupful of juice. The juice should be prepared daily. This juice having all the physical properties of raw meat, is easily digested, is well tolerated, and, served in the following manner, is always very grateful to the patient. The juice should be mixed with equal parts of tepid broth made of bones, and flavored with salt and pepper, and to which tapioca, vermicelli, etc., can be added. Care, however, should be taken that the broth is never more than *tepid*, otherwise coagulation takes place, and the desired effect is not obtained.

The treatment of the consumptive patient by this method is the following: Early morning, warm milk (not boiled), with bread and butter, and, if the appetite be good, some fat bacon and eggs. At eleven or twelve o'clock, breakfast, before which a drachm of the syrup of triple phosphate should be taken; during the meal itself, a dose of the muriatic phosphate of lime, and half of the daily allowance of the raw meat juice in some broth. The meal should consist, according to appetite and digestive powers, of fish or poultry, or white meats, fresh vegetables, and a few glasses of good alcoholic wine. Dinner at six o'clock on the same principles; broth, with the remainder of the raw meat juice, and, instead of the triple phosphate, a dessert-spoonful of cod-liver oil can be taken with advantage after the meal, if the liver be not enlarged and fatty, and the digestion good. The muriatic solution, or wine of phosphate of lime, should also be taken during the dinner. At night, before retiring to rest, a cupful of warm fresh milk, diluted one-third with Vichy water.

No medicines whatsoever, beyond those mentioned, should be administered unless some special indications or some urgent symptoms

claim their use. Anodynes, narcotics, cough-mixtures, lozenges, blisters, inhalations, etc., are practically of no good, and but too often, by lessening the appetite or by irritating the patient, they increase the debility and hasten the fatal end. All hygienic rules—out-of-door exercise, ablution of the skin, etc.—should at the same time be carefully attended to. Under the influence of this treatment, the appetite rapidly returns, the cough becomes less troublesome, the expectoration lessens, the night-sweats and all unfavorable symptoms decline and disappear, the patient gains flesh and strength, and the confined and helpless invalid, with proper care and prudence, can enjoy life once more. *Phil. Med. Times.*

THE THERAPEUTICAL ACTION OF QUININE.

M. Sée has been delivering, at the Charité, a series of clinical lectures on the therapeutic action of quinine, some notes of which may be of interest. He is one of the most advanced scientific therapeutists, and believes that the action of drugs in disease may be predicted and explained by their physiological action in health. It is impossible to give more than a general idea of the views advanced and ably expounded by references to the natural history of the various diseases and the known action of quinine in their different forms, especially with regard to malarial fevers and acute rheumatism. His general conclusions are as follows:—

In health quinine has a threefold action: first, it diminishes the frequency and force of the action of the heart; secondly, it lowers the tension of the arterial system; and, thirdly, it lowers the temperature, or prevents its elevation by exercise, etc. Whilst recognizing its action on the amœboid movements of the white blood-corpuscles, as shown by Cohnheim, Binz, and others, he does not regard this as of great importance. In an able analysis of the various forms of malarial fever, and the teachings of experience as to the value of quinine in each, he concludes that the drug cannot be regarded as a specific or counter-poison—as (1) it does not prevent malarial poisoning when taken as a prophylactic; (2) it does not prevent recurrence after a variable period; and (3) it is useless in some of the most fatal forms, especially where the fever tends to assume a continued type. Moreover, it points out that in other fevers which present the characteristics of periodicity and the occurrence of initial rigor—*e.g.*, urethral fever from catheterism—quinine has an equally beneficial effect. He believes that the effect of quinine in ague is due to its threefold action, exerted chiefly during the period of rigor: by its action on the heart, it diminishes its frequency and force; on the peripheral arteries, it lowers

their tension, and produces dilatation: on the spinal cord and vaso-motor centres, acting as a sedative, it tends to diminish their excitability; and, lastly, it exerts a direct cooling action on the system generally—the latter, however, being the least important factor. In acute rheumatism, M. Sée considers it by far the most valuable medicine; and states that he always returns to it with benefit after the trial of all other methods of treatment. Here, again, he sees in its physiological action the most precise indications for its use. Especially in its effect on the spinal cord—in lowering its irritability, and thus diminishing the sensibility to pain; and lessening reflex excitability, and thus reducing irritation and the afflux of blood to the inflamed joints—does he consider that its value lies, its action on the vascular system and lowering temperature being also beneficial. The dose which M. Sée recommends is from one-half to one and one-half grammes (or eight to twenty-four grains nearly) in the day; increasing it, however, to two or three grammes, or even more if needful. It may be mentioned that this mode of treatment is adopted by a large number of the leading physicians in Paris, either exclusively or with other means; and they all appear to be unanimous in its favor. It is only in the acute stages that M. Sée considers it beneficial except for the relief of pain; and in this respect it is also useful in gout.

A NEW REMEDY FOR HAY-FEVER AND SNEEZING.

BY HORACE DOBELL, M.D.

At this season of the year, when "sneezers" and sufferers from "hay-fever" are in the depth of their miseries, it is merciful to make public any reasonable suggestion for their relief. I have therefore much pleasure in being able to bring forward a little contrivance and a prescription, by the combined use of which immense comfort may be given to many sufferers.

The prescription is as follows:—

Chloral hydrate and camphor (of each)	16 grains.
Carbolic acid	20 "
Pure morphia	12 "
Oleic acid (enough to dissolve the morphia)	20 "
Castor-oil (the clearest and finest)	7 drachms.

Rub well together to make a lotion.*

* As different perfumes affect different patients peculiarly, no scent is added in this formula; but any one who prefers it may have it scented by the addition of whatever perfume is known to suit best.

The "contrivance" is for the efficient application of the above remedy, and consists of a miniature bottle contained in a little box-wood case, so that it can be carried easily in the pocket. To the lid of the box is attached the cork of the bottle, and to the cork, in the same fashion as the spoon of a cayenne-pepper cruet, is fixed a little club-shaped rod of polished ivory, long enough to reach to the bottom of the bottle, and also to the upper extremity of the nostril. The little bottle is kept half full of the lotion above prescribed, and the little rod immersed in it. Directly the patient feels the tickle or other signal of a coming sneeze, he uncorks his bottle, withdraws the ivory club, wet with the oleaginous lotion, and gently pushes it up the nostril till it reaches the seat of the sneeze-signal; there it should be gently pressed so as to apply the lotion to the part. After this the club is withdrawn and returned to its little bottle of fluid, where it becomes at once charged for a fresh application. As often as the sneeze threatens the operation should be repeated. Very often one application will keep off a threatened *fit* of sneezing altogether, even though its first effect may be to excite a sneeze.

I have requested Messrs. Savory and Moore to keep this little appliance ready-made and charged with the lotion, so that it can be sent by post without difficulty or delay. It has been of so much comfort in cases within my own practice, that I am sure it is worth while for any one who has not yet found a remedy to give it a trial.

In cases accompanied by much throat irritation, it is advisable to combine with this treatment the use of the "Lozenges for Postnasal Catarrh," prepared from a prescription formerly published by me ("On Winter Cough, etc.," 2d edition, p. 204), and always kept ready-made by Bell, Savory, Squire, Corbyn, Hanbury, and other leading chemists.

I may add that, when there is great prostration, and a tonic is required, tincture of eucalyptus globulus will sometimes answer better than quinine, especially if there is much feverishness.

None of these remedies should be used without consulting the doctor in attendance on the case.—*Pharmaceutical Journal.*

Treatment of Hay-Fever.—J. B. Bradbury, M.D., says: "Helmholtz's discovery of vibriones in the nasal secretion in hay-fever, and his successful treatment of his own case by the injection of a neutral solution of quinine in nasal cavities, were facts not unknown to me. I was not, however, aware, in consequence of reading a notice of Binz on the poisonous action of quinine on infusoria, that Helmholtz resorted to this method of treating the disease. I would suggest another remedy, viz.: solution of camphor for this disorder, founded upon the

same experimental data. My friend Mr. Anningson, assistant to Professor Humphrey, showed me a short time ago the poisonous effect of a solution of camphor upon some infusoria, chiefly paramœcia. This solution produced a perfect cessation of movement in them. It occurred to me at the time that the value of a strong solution of camphor, frequently and for some time sniffed up the nose in the early stage of coryza, might depend upon the camphor destroying some low organisms which most probably produce this complaint. On this hypothesis I would also recommend a strong solution of camphor, similarly applied to the nose in hay-fever. . . . I may add, in conclusion, that the most efficacious remedy in hay-fever, as far as my experience goes, is the application by means of a camel's-hair pencil, of tincture of opium to the interior of the nose. I can also speak highly of the internal administration of arsenic."—*British Medical Journal.*

THE INFLUENCE OF BRANDY ON THE BODILY TEMPERATURE, THE PULSE, AND THE RESPIRATIONS OF HEALTHY MEN.

BY E. A. PARKES, M.D., F.R.S.

In the proceedings of the Royal Society (Nos. 120, 123, and 136), the details of experiments are given which show that in two healthy men pure ethyl alcohol, brandy, and claret, given at intervals during the day, produced no effect on the temperature of the body as measured in the axilla and rectum.

This result is in accordance with the experiments of several other observers, while there are some experimenters who have noticed a decrease in temperature in healthy men after the use of alcohol. In some cases of disease in men, and in some healthy animals, alcohol has caused, it would seem, a decided lessening of temperature.

These differences of statement led me to conceive that the time when the alcohol was given might have some effect.

In the experiments formerly reported to the Royal Society, alcohol was usually given either with or at no long interval from food. As food raises the temperature of the body, it occurred to me that it might mask an opposite action of the alcohol; and I therefore determined to repeat the experiments, and to give the alcohol about four hours after a moderate breakfast, when the heating effect of the food had gone off, and when digestion was completed, and also to give it in a state of complete inanition.

I believe the following conclusions may be drawn from the observa-

tions already recorded, and from those now laid before the Royal Society.

1. When brandy in dietetic doses (=2.16 fluid ounces, or 61 cub. centims., of absolute alcohol) was given to a healthy man fasting and at rest, a decided, though slight lowering, of bodily temperature (as judged of by the heat of the rectum) was caused. The amount of lowering was under ½ a degree of Fahrenheit; and sometimes even this amount was not perceptible, being probably counteracted by the opposing influence of the heat-producing changes in the body, which cause slight variations of temperature independent of food and movement. The greatest effect was produced from about one to two hours after the alcohol was taken, and the effect was evidently passing off in three hours.

2. When brandy in dietetic doses was given to a healthy man at rest, and in whom the process of digestion was completed, and whose temperature raised by the food was again commencing to fall, a lessening of temperature was also proved, but its amount was not so great; it could not have been more than 0.35° Fah., and may have been only 0.07° Fahr.

3. When alcohol was given with food, with either usual or increased exercise, no effect on temperature was perceptible, even though the alcohol was given in large quantities, viz., from 4 to 8 fluid ounces of absolute alcohol (114 to 227 cub. centims.) in twenty-four hours. It is to be presumed that the amount of heat generated from the food and movement concealed the effect of the alcohol, which would requjre a more delicate method or longer observations for detection.

4. In no case did alcohol raise the temperature.

5. The effect of alcohol on the pulse was uniform in the four men experimented upon. The contractions of the heart were more frequent after alcohol during complete rest, from five to ten beats per minute for some time; and when exercise was taken, the increase was greater. The mean pulse of the twenty-four hours was, however, not increased unless the amount of alcohol was large and repeated. In other words, the heart's beats were less frequent than natural when the effect of the alcohol had passed off. The pulse became both fuller and softer to the touch; and this relaxation of the radial artery was shown also by the sphygmograph. That the smaller vessels were relaxed, was shown both by the redness of the surface and by the evident ease with which the blood traversed the capillaries, as shown by the sphygmographic tracings.

6. The respirations were not increased in number by alcohol; they were rather lessened, and were deeper in some of the experiments;

but the effect was not very marked.—*Proceedings of the Royal Society.*

Hypodermic Injections of Stimulants in Adynamic Conditions.—A writer in the *Progrès Médical* advises the administration of diffusible stimulants by subcutaneous injections in those conditions of extreme prostration where the administration of medicine by the mouth is difficult or impossible, and where it is desirable to produce a rapid effect. Camphor dissolved in twice its weight of oil of sweet almonds, or thirty to forty drops of sulphuric ether, may be employed in this way. Generally the patient feels a sharp pain for a few moments following the injection, but absorption takes place quickly, and the adynamia is successfully combated.

THE EMPLOYMENT OF GELSEMINUM IN ODONTALGIA AND FACIAL NEURALGIA.

A WRITER to the *British Med. Jour.* say: "I desire to draw attention to the value of gelseminum sempervirens in the treatment of some forms of odontalgia. Since reading Dr. Wickham Legg's paper, published in May last, advocating the employment of the drug in cases of odontalgia, I have frequently used the remedy for the relief of toothache and some allied affections among my out-patients. Gelseminum, commonly called the yellow jasmin, is not very generally known to English practitioners, although it has been largely used in medicine for some years in the United States. The drug seems to act mainly upon the nervous system, impairing the sensibility of the sensory nerves. American pharmacists prepare a liquid extract; the dose of the powder root is from one to two grains; I have used a tincture, made from two ounces of coarsely powdered gelseminum root macerated in a pint of rectified spirit. In hospital out-patient practice, we meet with a large number of cases of neuralgic pains in the face and jaws, associated with carious teeth, but unconnected with any evident local inflammatory changes. The patients are frequently badly nourished women. In such cases, I have given the tincture of gelseminum, in doses of fifteen minims every six hours, in an ounce of dill-water. Out of about twenty cases, I do not think the use of the remedy has failed to be followed by decided and lasting relief in more than three or four instances. The pain did not usually disappear till after the third or fourth dose. I have seen enough of the employment of gelseminum, to feel sure that more extended experience and careful investigation of its action will establish the drug as a valuable addition to our materia medica.

"Case I.—S. W., aged 30, confined eight months ago, not suckling, anæmic, for twelve months had been suffering with grinding, shooting pain in the teeth, jaws, and temples. The pain was generally worse from 9 to 10 A.M., sometimes at night. Eating brought it on. She had several stumps, but the dentist said that nothing was to be done. She had tried many medicines. She was ordered tincture of gelseminum, ten drops in water, thrice daily. She was relieved by the first dose, and the improvement continued whilst she was under observation and taking the medicine—two or three weeks.

Case II.—T. B., aged 39, complained of violent stabbing pain from the mastoid process, over the side and front of the head, coming on from 3 to 6 A.M. This had continued for three weeks. There was no known cause, except a fall on the part seven months ago. His general health was good. He was ordered five grains of quinine before the paroxysm, fifteen grains of ammonium chloride thrice daily, and liniment of chloroform. He got no definite relief, except from the last mentioned, and, at his next visit, was ordered three drops of tincture of aconite. From this he had much relief for a few days, when he relapsed. Pain was now felt more in the jaws and left side of the face. He was ordered ten drops of tincture of gelseminum, and got distinct and decided relief, which continued whilst under observation.

"My note-book contains now many similar cases, which warrant me in adding my testimony to that of Dr. Legg, and to that of my friend and colleague, Dr. Sawyer. I have ample evidence of the power of gelseminum to relieve pain, especially—I do not say only—in branches of the fifth nerve; and medicines that relieve pain are the most valuable we can have. In toothache from caries or irritated nerve, I do not know that we often think of any but local treatment, unless sometimes aconite or large doses of quinine; yet in very many cases, gelseminum will relieve markedly. Its use, as may be said of most neurotics, is not free from some danger; but I have only seen unpleasant symptoms once, and then from an American liquid extract in doses of five to ten drops (the dose marked on the label). These symptoms were dimness of vision and extreme prostration. They soon disappeared, but may serve to remind us that the evidences of the physiological action of the drug are, loss of sight, double vision, headache, paralysis. Several cases of accidental poisoning have exhibited these; the few recorded fatal ones were all of children to whom extravagant doses had been given. The preparation I now use is a tincture made according to the usual pharmacopœial mode (*e.g.*, as tincture of aconite), but with two ounces of root to the pint of spirit. It was first prepared here by the hospital dispenser, Mr. Dewson, and is now kept by

Messrs. Southall. The dose ordered was from five to twenty drops, and with this, among a large number of out-patients, I have had no cause for anxiety. As the "Therapeutic" corner of our Journal is now, and usefully, occupied concerning tetanus, I will point out that gelseminum, from its paralyzing power, ought, *à priori*, to be of use in that malady."—*Brit. Med. Journal.*

COPAIVA IN CROUP.

In the *Transactions of the Medical Society of the District of Columbia*, Vol. I., No. 1, after relating a case, Dr. Lincoln wished to draw attention to a very important remedy in the treatment of croup—copaiva—which he considered of the greatest use in this and similar cases. He thought it prevented the re-formation of false membrane. On the night referred to in the report, when he removed the second specimen, he found the child as bad as ever, laboring under dyspnœa from false membrane in the air-tube. He removed the inner canula, but found no membrane in it. Sent for copaiva, and in the meantime applied a mixture of copaiva and glycerine (of which a small quantity was in the house) to the inner canula, which he then reinserted. This produced a paroxysm of cough, and a piece of membrane was thrown out. He afterwards gave one drachm of copaiva, with prompt relief. Since then had applied a mixture of copaiva to the inner canula with great benefit, according to the statements of the parents. There were still some patches of membrane about the palate. Has seen the efficacy of copaiva in many cases; in one, a case of very severe membranous croup, a full dose of one drachm would again and again relieve the urgency of the symptoms, and the child recovered. He would have performed tracheotomy in the case but for an existing vitiated condition of the system.

As to chloroform, Dr. Lincoln considered that in Dr. Walsh's case no danger need have been apprehended from the anæsthetic, as instruments were at hand ready to open the trachea at any moment. He thought, however, the apparent final success was due to the copaiva.

Dr. Miller had used copaiva extensively in croup for thirty years, and had before spoken of its efficacy in the Society. Was in the habit of placing a vial of balsam copaiva in possession of all his patients subject to croup, directing them to take doses of twenty or thirty drops before sending for medical aid. The result was, that whilst he used to be frequently called out at night to attend croup cases, he was now but seldom annoyed at night by similar calls. So great was the faith of his patients in this remedy, that he had often been applied to for

his so-called "croup medicine." It was especially valuable in the early stage.

Dr. Lincoln had never seen copaiva fail if given in the first stage of the disease, and had derived great benefit from it in every period of the complaint. In reply to a question by Dr. Fenwick, he said the remedy was of great use, even in the pseudo-membranous form of croup.

THE ADMINISTRATION OF PHOSPHORUS.

In *The Practitioner*, Mr. J. A. Thompson gives the following formula for the administration of phosphorus:—

℞. Phosphorus.....gr. j.
Absolute alcohol.....f. ʒ v.
Glycerine.....f. ʒ iss.
Spirits of wine.....f. ʒ ij.
Spirit of peppermint.....ɔ ij.

One drachm of this mixture contains $\frac{1}{12}$ gr. of pure phosphorus. This combination possesses little or no phosphoric odor, and, according to Dr. Radcliffe's theory, "that the disappearance of the characteristic odor from a solution of phosphorus is presumptive evidence of the oxidation of the drug," ought to be inert, but Mr. Thompson's successful results in thirteen patients show that this is not the case. Mr. Thompson has given the phosphide of zinc a trial in six cases. This compound is prepared by bringing phosphorus vapor into contact with melted zinc in an atmosphere of dry hydrogen. Only one-half the phosphorus in this substance is said to be available for therapeutical purposes; $\frac{2}{3}$ gr. of zinc phosphide corresponds to $\frac{1}{12}$ gr. of phosphorus, and Mr. Thompson finds this the most efficient dose. The drug may be given in the form of pills, in combination with other substances, *e.g.* quinine, aloes, or strychnia, and these pills are found to keep well. The remedy is not so speedy in its action as the solutions of phosphorus in oil or alcohol. Of the six cases treated with the phosphide, there was perfect recovery in two, two were remarkably relieved, one could not tolerate the medicine in consequence of its causing vomiting, and the other found no relief. Mr. Thompson concludes his remarks on this substance as follows: "It is inferior in power (in neuralgia) to the oily solution or the tincture; while, in point of convenience, for portability, and for combination with other drugs, it is superior to them. In point of cost it stands far above comparison with pills and capsules, which require a special process for

their manufacture, while it is not subject to any suspicion of degeneration with age."

Hypophosphite of Sodium in Neuralgia.—The therapeutic value of sodium hypophosphite in neuralgia has been tested by Mr. Thompson in three cases, and the results have been negative. He administered the remedy in water, in doses varying from five to thirty grains, every three hours. Two of the three cases were subsequently cured, one very much relieved, by a solution of pure phosphorus. Dr. Anstie's experience of sodium hypophosphite agrees with Mr. Thompson's, while, on the other hand, Dr. Radcliffe has successfully treated four cases of nerve-pain with this drug. Mr. Thompson has found this salt serviceable in cases of extreme debility, when given in five-grain doses, and he believes the remedy "has a special power of creating appetite. It seems to be a remedy which, to maintain its influence, requires to be given in progressively increasing doses."—*Ibid.*

THERAPEUTIC ACTION OF IODIDE OF POTASSIUM.

Kümmir, writing in *Virchow's Archives*, gives a theory of the action of iodide of potassium and mercury, and, among other things, speaking of the action of the iodide of potassium and free iodine in the treatment of synechia and specks on the cornea, says that he had himself been long troubled with these affections, and by the prolonged use of these agents he got rid of them. At first he used a solution of KI, but found that although at first there was no pain, yet in about four or five hours pain became very intense. He ascribed this to the action of HI, which is formed by the decomposition of the KI. He therefore added bicarbonate of soda (one part) to iodide of potassium (two parts), and found that with this solution no pain was developed. Later on, free iodine was added to the solution. The author remarks that although the treatment may be trusted to the patient, as it has to be pursued for a considerable time, only a small quantity of the solution should be made up at once, as it is apt to decompose.

On the Treatment of Diphtheria by the Vapor of Iodine.—Dr. John O'Neill (*Australian Medical Journal*, March, 1873) says the unsatisfactory results of the local treatment of diphtheria have induced him to look afield for some new agent of greater value than those at present in use. He has been led to reject sulphurous acid, whether applied in solution or as vapor from burning sulphur. Iodine in the volatile stage has yielded far more satisfactory results. In the form of

tincture, iodine has been already long since employed both internally and topically in diphtheria. The author volatilizes twenty to thirty grains of pure iodine by means of a heated shovel placed some little distance from the patient, in order to avoid the direct action of the fumes. The fumes are inhaled, and gain easy access to the larynx and trachea. Children seem especially tolerant of the iodine vapor. A milder effect is produced by allowing the iodine to evaporate slowly from flat, shallow dishes. This may be repeated during the day, the object being to keep the air of the room sensibly charged with fumes. The histories of two severe cases are appended. In the one, all the ordinary methods had failed; there had been hemorrhage from the throat, the effusion was extensive, and the patient refused food, and lay in a semi-comatose state. Three fumigations of thirty grains each were employed daily for three days. On the fourth, the exudation began rapidly to clear off. The other case is similar, but in it the membranes seem also to have involved the larynx and trachea.—*London Medical Record.*

Action of Drugs on Secretion of Bile.—(Röhrig—*Glasgow Med. Jour.*, from *Stricker's Jahrb.*)—In this paper a series of experiments made on dogs and rabbits is detailed. The author found that for a secretion of bile a supply of blood by the portal vein is chiefly requisite, but that after ligature of this vessel the secretion is continued for a time by means of the blood of the hepatic artery. He could not be certain that simple irritation of the mucous membrane of the intestine produced any increase of the bile secreted. On the other hand, purgatives generally increase the quantity secreted, and are, therefore, cholagogues. Of the purgatives, the following is their order in power of increasing the secretion:—Croton oil, colocynth, jalap, aloes, rhubarb, senna, bitter salts, calomel, castor-oil. It seems likely that these agents increase the secretion by a direct action on the liver after absorption, although they produce in the intestines a distinct hyperæmia. Injections of infusions of senna and rhubarb into the blood produced increased flow of bile, and that immediately after the injection. At the same time the power which these agents have of producing congestion of the intestine, and thus increasing the supply of portal blood to the liver, no doubt plays an important part in producing the increased secretion. Acetate of lead and carbonate of soda both decrease the quantity of bile. It was noticed that carbonate of soda caused anæmia of the intestines when introduced into them; and it is well known that acetate of lead contracts the general arteries of the body, so that the decreased flow of bile was probably produced by decreased blood supply to the liver. Opium seems to increase the quan-

tity of bile, apparently by paralyzing the blood-vessels, and so increasing the blood supply. It is an anti-diarrhœic, by interfering with the ordinary peristaltic action of the intestines. It is worthy of note that this author confirms an observation already made by Schmulewitsch, that the liver removed from a living animal continues to secrete bile if warm defibrinated blood is passed through its vessels.

A New Remedy for Diabetes Mellitus.—The Peripatetic correspondent of *The Students' Jour. and Hosp. Gaz.* mentions a new treatment of diabetes mellitus that has recently been introduced into homœopathic practice. It consists in giving the patients copious draughts of a decoction of *Lathyrus odoratus.* He remarks that "the idea of giving the active principle of *sweet pea* in a case of saccharine urine will commend itself to every one who believes in the great Hahnemannian postulate of *similia similibus curantur.*"

Nitrate of Uranium in Diabetes Mellitus.—Mr. Kennedy details (London *Lancet*, June) a case of diabetes, in which, after failure of skim-milk and other therapeutic measures, rapid improvement took place during the administration of the nitrate of uranium. One-sixth of a grain, gradually increased to a third, was given three times a day, dissolved in water.

Tannate of Quinine in Chronic Albuminuria.—Bouchardat (*L'Abeille Méd.*, July 6) says: "I am in the habit of employing the sulphate of quinine in chronic albuminuria according to the method of Dr. Devouves, and occasionally with unhoped-for success. The dose I employ is eight grains, in a cup of strong coffee, three times a day. This is continued for six days, and at the end of that time scammony or some similar purgative is administered. After one or two days' of rest the patient is again placed on the use of quinine; and I have frequently continued this treatment for more than a year. The food of course should, during this treatment, be highly nutritious. Lately I have been substituting the tannate of quinine for the sulphate, in doses of ten to twenty grains, three times in twenty-four hours, given in a similar manner. The digestive apparatus supports the tannate better than the sulphate."—*Philadelphia Med. Times.*

Atropia and Veratria in Incontinence of Urine.—Dr. Thomas Kennard, of New York, uses the following ointment in the treatment of this disease: Sulphate of atropia, ten grains; veratria, ten grains; hog's-lard twelve drachms. By rubbing the perineum three times daily with the ointment, in three cases of paralysis accom-

panied by incontinence of urine, Dr. Kennard obtained a complete recovery at the end of a few days.—*The Clinic.*

Mercurial Inunctions in Syphilis.—M. Panas (*Jour. de Méd. et Chirurgie prat.*) remarks that the sole objection to the use of mercury in this manner is the exposure to stomatitis and local irritative eruptions of the skin. To prevent the former, M. Panas recommends the use of astringent dentifrice powders from the beginning of the treatment, with watchful care of the teeth. One or two vapor-baths should also be administered to the patient daily. The use of tobacco should be discontinued as far as possible. It is principally in the graver forms of the disease that this treatment is found applicable,—when the nervous system and bones have been attacked. In these cases the most unhoped-for success is occasionally obtained. In newborn syphilitic children mercurial frictions should be used exclusively. M. Panas makes use of the ordinary mercurial ointment, to the amount of one to two drachms daily. The frictions are made in the evening before retiring, and should be continued for five minutes or so, over a limited portion of the body. They may be kept up for a month or six weeks, and may be recommenced if any new signs of the disease should appear.—*Philadelphia Med. Times.*

Belladonna, etc., in Incontinence of Urine in Children.—In a paper read before the Obstetrical Society of Dublin, by Dr. Kennedy, he strongly advocated the following measures for the cure of this complaint:—

1. Training patients to retain their water in the daytime as long as possible.
2. The use of the cold douche.
3. A moderate use of fluids towards night, and a total abstinence from *tea.*
4. The internal use of belladonna in gradually increasing doses, till its specific effects are produced. In referring to the action of this drug he mentioned one feature about it as regards children, namely, their small susceptibility to its action, and that they bear it very much better than adults.

Gelseminum in Calculus.—Dr. A. Shamblin writes to the Atlanta *Medical and Surgical Journal*, that he has been successful in the removal of small calculi from the bladder by the use of gelseminum sempervirens, which he exhibits in a powder. He states that one of his cases, in the four years past, has voided in all, seventeen stones from his bladder, of varying size. Dr. Shamblin employs co-

pious diluent drinks with stimulating diuretics for twelve to fifteen hours, and then directing his patient to retain the urine as long as possible, he administers the powdered gelseminum every two hours until general relaxation occurs, when the patient is placed in the knees-elbow position and directed to void his urine forcibly. His success, in repeated cases, by this method, has been gratifying.

Disappearance of Fibroid Tumor during the Administration of Chloride of Ammonium.—Dr. F. W. Hatch relates, in the *Pacific Med. and Surg. Jour.*, the case of a woman aged thirty-nine years, who had a tumor in the abdomen extending from the pelvis upwards and towards the left side, above the umbilicus, and who had neuralgia of the supra-orbital and temporal regions of one side. For the latter affection chloride of ammonium was given to the extent of sixty to eighty grains daily, in divided doses. The relief to the neuralgia was very marked, and at the same time the abdominal tumor, which Dr. H. regarded as a uterine fibroid, diminished, and before the end of the year had disappeared.

Treatment of Fibrous Tumors of the Uterus by Hypodermic Injection of Ergotin (*The Chicago Medical Journal*, June, 1874).—Dr. A. Reeves Jackson and others report seven cases of uterine fibroid tumors, in four of which there was diminution of the size of the tumor, with marked general improvement; in another the tumor was not affected, but the pain and hemorrhage were destroyed: in one the tumor disappeared entirely and permanently, and in one there was no improvement whatever. The solutions of ergotin all produced pain, and were occasionally followed by abscesses: it was, therefore, found advisable to prepare a solution as follows: "Fifty grains of the extract (Squibb's) are dissolved in two hundred and fifty minims of water, the solution filtered, and made up to three hundred minims by passing water through the filter to wash it and the residue upon it. It represents ergot grain for minim, free from alcohol or other irritating substance." This rarely produces any pain or inflammation.

Subcutaneous Injections of Ergotin for Varicose Veins of Pregnant Women.—At a meeting of the Obstetrical Society of Berlin, in April, 1873, Dr. Rugge related a case where he had obtained marked results from the use of ergotin. A woman, 36 years of age, who had suffered exceedingly, during a previous pregnancy, from varices, came under his care in the eighth month of pregnancy, suffering from her previous trouble. The veins of the left leg and thigh were enlarged, dilated, and tortuous.

Injections were made subcutaneously with from one to two grains of ergotin, and repeated every few days. The action was very apparent after the first injections, and after the seventh the varices had almost disappeared. The right extremity was not affected.

There was some pain and infiltration following each insertion of the instrument, but no abscess occurred. The ergotin had no influence in provoking labor-pains.—*Berl. Klin. Woch.*

Ergot in Dysentery.—The Cincinnati *Medical News* states that M. Luton, of Rheims, had found, in giving *ergot* to a female patient, who was suffering at the same time from uterine hemorrhage and dysentery, that both affections were promptly relieved. This led to the use of ergot in simple dysentery. It proved an efficacious remedy. Three grammes (about 45 grains) were given in the course of a day, in doses of 7½ grains. Two or three days generally sufficed for a cure. It appeared to attack not only the hemorrhagic element, but the whole disease, and the mucous secretions; the griping colic and fever were equally relieved. We have not tried the ergot in this disease. For most cases of dysentery we prefer the saline treatment, conjoined with anodynes and revulsives. We usually commence the treatment with a large sinapism to the abdomen, to be followed by warm fomentations and the following internal remedy: ℞. Sulphate magnesia, two teaspoonfuls of water, ℥ iij.; tinc. opi. deodorati, ʒ i. M. Give one teaspoonful every two hours until the change in the discharges show that it has acted; then continue once every four hours. In most cases the disease will be converted into a mild diarrhœa by this plan in twenty-four to forty-eight hours, when it may be arrested by opiates. If the patient is bilious, ten to fifteen grains *chalk and mercury* should be given before commencing the saline mixture; and, if there is malarial complication, quinine should be given every morning.

Ergot of Rye in Treatment of Intermittent Fever.—In an interesting "Revue de l'Année" in Gubler's *Journal de Thérapeutique*, M. Bordier alludes to the following among other articles of vegetable materia medica: Ergot of rye, strophantus hispidus, valerian, galega officinalis. With regard to ergot, M. Duboué, of Pau, supposes that it has some physiological action, and, consequently, the same therapeutic action as sulphate of quinine, and that as the latter arrests hemorrhages, and provokes abortion, the former ought to cure intermittent fever. Of fifteen cases of palustral fever treated with ergot, fourteen were successful.

Preparation and Action of Muscarin.—Muscarin is a poisonous alkaloid extracted by alcohol from a species of mushroom (Amanita muscaria). The most interesting feature of muscarin is its

antagonism to atropin. These alkaloids neutralize each other's action on the system so perfectly, that each can be used as an antidote in case of poisoning by the other. The pupil of the eye, enlarged by atropin, is contracted by muscarin. The depression of temperature caused by muscarin, injected beneath the skin, is counteracted by a similar application of atropin; and the heart of a frog that has ceased to beat from half an hour to an hour, under the influence of muscarin, has been restored to activity by atropin. Possibly quinine sustains a similar relation to the poison inducing intermittent fever that atropin does to muscarin.

Sumbul.—This drug, said to be an excellent nervous sedative, especially for the "shakiness" which follows "strong liquor galore," is not much used in the United States. Mr. J. Morgan, in the *Medical Press and Circular*, narrates a curious effect an overdose of the tincture, half an ounce, had on a young man. He took that quantity during the night. He felt confused during the next day, but in the afternoon became more overwhelmed, having a great tendency to snore, and did so while quite awake; he felt as if his legs were not his own, and could not trust himself to walk. There was a general feeling of tingling, stomach not sick, pupils natural and obedient to light, a strong odor of the medicine from the breath and skin, and especially from the palms of the hands, which felt, he said, "sticky." He had been given strong coffee and tea, and kept moving by the attendants, who worked vigorously.

The snoring, while quite awake and conscious, and lasting for several hours, was remarkable, as well as the peculiar odor of the sumbul being more perceptible from the skin than from the breath. The effect gradually passed off by the next evening.—*Phila. Med. Rep.*

Does Chloral introduced into the System produce Physiological Effects similar to those of Chloroform?—The *Gazette Méd. de Paris*, July 11, contains a discussion of this question by the editor apropos to certain proceedings in the Académie de Médecine. In the Academy, M. Colin, who had been advocating the use of intravenous injections of chloral, was asked whether this substance is or is not converted into chloroform in the blood, and, if the former is the case, what advantage can possibly accrue from the administration of chloroform by this means over inhalation as usually employed. To this question no reply was given, seeming to indicate that the action of the two substances in the economy was assumed by the Academicians present to be identical.

To this view Dr. Laborde, the writer of the article in the *Gazette*,

takes vigorous exception. It is difficult, he thinks, to understand how any physiologist who has experimented with chloral can admit that this substance comports itself in the organism like chloroform. The phenomena which constitute the essential features of this difference are as follows. The period of excitement which is habitual in chloroform-inhalation does not exist after the administration of chloral. Experiment shows that this difference is not due to the method of administration, since chloroform injected into the veins or introduced into the stomach or rectum is followed by the same excitation as that which occurs subsequently to inhalation.

Chloral, as is known, produces sleep rapidly, while the anæsthesia which follows the sleep is not well marked or persistent until a further and sufficient dose has been administered. Once obtained, the anæsthesia, like the slumber, is quite prolonged, and both continue for an equal period. The persistence of sleep and anæsthesia may be more or less long, but they are always longer than the same effects when produced by chloroform.

On the other hand, with chloroform the anæsthetic effect dominates the properly hypnotic effect, and the first may be established and persist without the second having been produced. Every surgeon knows that there are certain patients in whom slumber can be produced by means of chloroform only with difficulty, while a sufficiently anæsthetic effect may be brought about without much trouble.

The sleep produced by chloroform is usually uneasy, disturbed, and full of dreams, while that brought about by chloral is calm and peaceful.

What is most characteristic, however, in the differences between the respective actions of chloral and chloroform is, on the one hand, the mode of awakening, and on the other the consecutive phenomena. The animal or man who has been under the effect of chloral awakes as if from a natural slumber. It is hardly necessary to say that this is far from being the case in slumber or anæsthesia produced by chloroform.

Although a certain proportion of chloral introduced into the blood may be converted into chloroform, yet the fact that in injections, etc., of chloral, the breath, the blood, etc., smell of chloral and not of chloroform, shows that much of this substance remains unchanged. M. Laborde does not believe in the intravenous injection of chloral, which, if introduced in concentrated doses, leads, he thinks, to local trouble, and, if introduced in diluted solutions, exposes the patient to greater danger from the necessarily repeated operations.

Intravenous Injection of Chloral.—An account has recently been published in the *Journal de Thérapeutique*, of a well-marked

case of tetanus, in which recovery followed the injection of hydrate of chloral in three doses of fifty grains, at intervals of twenty-four hours. The paralysis of sensibility and motility, said to have closely resembled surgical shock, was complete, and there was no appearance of phlebitis. Great care, however, is required, if the solution is of sufficient strength to be of any service, to avoid injecting any of it into the surrounding cellular tissue, as it is liable to produce a most painful abscess.

It is especially urged that chloral is incapable of paralyzing the reflex action of the cord except when administered by direct intravenous injection. This method has also been chosen by M. Ore, who claims to have solved the problem of anæsthesia by thus maintaining insensibility for any necessary length of time, and afterwards being able to restore consciousness very speedily by the application of electricity. The injection of five and a half drachms of a solution of chloral in three times its weight of water kept a patient in a calm sleep during an operation for necrosis of the astragalus, occupying nearly half an hour.

The further investigation of the phenomena which follow this method of administration has been chosen as the subject of his present course of lectures by M. Vulpian, the professor of experimental pathology, who takes the chair left vacant by the departure of Brown-Séquard from Paris.—*Medical Examiner.*

Injection of Chloral into the Trachea.—At a recent meeting of the Société de Biologie, M. de Bellesme suggested the introduction of chloral into the system by this means in cases where the circulatory and absorbent functions are almost in abeyance, and where therefore subcutaneous or intravenous injections cannot be practised with reasonable hope of success. The process simply consists in inserting the needle of a hypodermic syringe into the trachea, at a point about one finger's-breadth below the cricoid cartilage, and slowly injecting the solution, which can be used in much larger quantities than by the subcutaneous method. This method is likely to prove serviceable in tetanus, hydrophobia, and the algid stage of cholera.—*Le Progrès Médical*, May 23.

Chloral Hydrate and Camphor as a Local Application in Neuralgia.—It is stated that the intimate mixture of equal parts of chloral hydrate and camphor will produce a clear fluid which is of the greatest value as a local application in neuralgia. Mr. Lenox Browne relates (*Brit. Med. Journ.*, March 7, 1874) that he has employed it, and induced professional friends to do so, and that in every case it

afforded great, and in some, instantaneous relief. "Its success does not appear," he says, "to be at all dependent on the nerve affected, it being equally efficacious in neuralgia of the sciatic as of the trigeminus. I have found it of the greatest service in neuralgia of the larynx, and in relieving spasmodic cough of a nervous or hysterical character. It is only necessary to paint the mixture lightly over the painful part, and to allow it to dry. It never blisters, though it may occasion a tingling sensation of the skin. Has found it also an excellent application for toothache.—*Medical News.*

Croton-Chloral in Facial Neuralgia (*The British Medical Journal*, May 23, 1874).—Dr. F. B. Lee reports the case of a lady, æt. 32, who had suffered for years from attacks of facial neuralgia, had had several teeth extracted, had been blistered behind the ears, and had tried numerous other means without avail. He prescribed croton-chloral in three-grain doses every four hours. After the third dose perfect ease was experienced, and, although three months had elapsed, there had been no return of the disease.

Chloralum in Cholera.—The internal use of chloralum in cholera is highly recommended by Dr. Henry Blanc, surgeon in the Indian army. His mode of administration was, one part of liquid chloralum to twenty-five parts of water, and directed an ounce of the mixture to be given every half hour: also that an enema containing sixteen ounces of the mixture be administered every hour. Undiluted chloralum was sprinkled on and around the bed. Remedy given less frequently as the reaction became more completely established.—*Lancet.*—*Braithwaite.*

Belladonna in Goitre.—Dr. R. T. Smith reports two cases of exophthalmic goitre, which were relieved and almost cured by the free administration of tincture of belladonna, after the failure of nearly all other known remedies. He considers it possible that the relief was given primarily through the heart, the drug acting sedatively thereon.

Oxygen.—MM. Croce-Spinelli and Sivel have lately found that they can ascend to much greater heights in balloons by breathing oxygen with the rarefied air.

M. Gaudin, referring to this, tells the Paris Academy of Sciences that in 1832 cases of cholera were saved by employing oxygen, which brought on reaction from collapse. M. Gaudin says he has often taken oxygen enough to produce effects similar to those excited by champagne, and that then, in addition to a feeling of well-being, he

has observed that he could hold his breath for five minutes without bringing on any sensation of suffocation. [? Ed., N. R.]

If this should be found a common result, the inhalation of the gas would be of great service to pearl-divers and others.—*The Doctor.*

Benzine in Seborrhœa.—Mr. Canty, of Liverpool, in his late work on "Cutaneous Medicine," recommends as the best solvent for sebum, benzole, used either pure or as a lotion. "If," he says, "there are collections in the convolutions of the ear where instruments can only be inconveniently used, pure benzine, applied with a brush, will readily dissolve the sebum, leaving the central black spot quite intact, as a pillar of dirt and hairs in a cavity. If used on the face, back, or shoulders, some camphorated oil being added to ten times the quantity of almond oil, the mixture should be rubbed into the skin at night. In the morning the benzole lotion should be applied with a sponge or flannel, and afterward the parts well washed with warm water and soap." He gives the following formula:

℞. Benzole ..... ℥ ss.
Gum tragacanth..... ℥ ss.
Aquæ..... ℥ viij.

We need not add that comedones or pimples on the face, so annoying to many young persons, are forms of seborrhœa.—*Med. and Surg. Rep.*

Styrax in Itch.—In the Catharine Hospital, in Stuttgart, they treat scabies with the following ointment:

℞. Styracis..... ℥ i.
Olei olivæ,
Spir. vin. com.....āā ʒ i. M.

The patient, if an old case, is first washed thoroughly with soft-soap, having it well rubbed in, nine to twelve times in three days, and then anointed with the above one to three times in one day. In recent cases the soft-soap treatment is not required. In 1,659 cases thus treated in three years, every one was cured, and although no precautions were taken to destroy the insects on their clothing, *not one relapse occurred.*

Nitrate of Mercury in Periodical Uterine Hemorrhages.—Dr. Joulin has for some time treated the periodical hemorrhages, which occur between the catamenia, by means of the acid nitrate of mercury which he applies to the cervical canal by means of a rod of glass moistened with the medicinal fluid. The effect is incontestable, and the new method causes neither pain nor accidents. It is neces-

sary, however, to make a vaginal injection at once, without which there would be severe and persistent smarting. If the cervical canal is contracted, a preparative dilatation is to be made. If the rod does not hold a sufficient quantity of the nitrate, Joulin uses a steel rod on which a little cotton is wound. The little tampon, after having been well moistened with the nitrate, is carried into the cervical canal and then quickly removed. Joulin asserts that he has hardly ever failed in his object by this method, and that he has thus cured hemorrhages of long duration which had proved rebellious to other modes of treatment. Good results have also been attained in persistent leucorrhœas.—*Jour. de Joulin* and *Gaz. Med. Ital. Lombard.*, No. 35, 1873.

The Best Method of Using Chlorate of Potassium Topically.—Prof. Gosselin, having experienced the frequently unsatisfactory performance of this remedy when used locally in cases of mercurial stomatitis, etc., has devised the following method, which he recommends strongly: A concentrated solution of the salt, mixed, if necessary, with a little laudanum to quiet any pain caused by the stomatitis, is placed upon pieces of lint and introduced into the gingival gutters on each side of the mouth. These pieces of lint are to be renewed at short intervals during the day, and may be alternated with the salt in the usual form of a gargle.—*Ibid.*

On the Treatment of Varicose Ulcers by Hypochlorites.—In the second number of Gubler's new *Journal de Thérapeutique*, M. Panas has a most interesting paper on the above subject; he draws attention to the researches of Lisfranc and others in the same direction. He claims for "l'eau chlorurée" (hypochlorite of lime) a remarkable power of rapidly modifying the grayish surface and fetid sanies of varicose ulcers. This property he explains very plausibly, by assuming that oxygen in the nascent state is developed when the hypochlorite (ClO CaO) is applied to organic matters, chloride of lime being formed at the same time. He very ingeniously compares this oxidizing action of "l'eau chlorurée" with the results obtained by the application of pure oxygen to gangrenous parts, as practised by MM. Langer and Démarquay. The paper will well repay perusal.

The Treatment of Erysipelas with Hypodermic Injections of Carbolic Acid.—Dr. Aufrecht (*Centralblatt für die Med. Wissenschaften*), having had under his care during a short time several cases of erysipelas in aged persons, after comparatively slight injuries, all of which terminated unfavorably, was induced to try carbolic acid in the treatment of this disease. If it is true that erysipelas in trau-

matic cases such as these is a consequence of the entrance of organic bodies into the subcutaneous cellular tissue and their proliferation there, and if carbolic acid possesses the power of destroying these germs, or at least of rendering them innocuous, the acid must be able to prevent the spread of the disease, and thus to some extent reduce the danger. To convince himself that the hypodermic use of carbolic acid was innocuous, Aufrecht made experiments upon himself with a solution of the strength of one per cent., and found that its use was attended by no unpleasant consequences. He soon had an opportunity of proving the efficacy of this treatment upon two patients: the first a woman, aged 56 years, with erysipelas of the forearm and hand, upon the latter of which was a small cut; the second was a man aged 82 years, with erysipelas of the leg, about the scar of an old ulcer which had reopened. In the first of these cases five, and in the second four, injections were made. The injections were made into the sound tissue upon the proximal side of the erysipelatous area, and the disease spread no farther in that direction. The good effect of the treatment was, however, more strikingly manifested in the diminution of the temperature and the frequency of the pulse, and in the improvement of the general condition. The erysipelatous swelling and redness soon became less, but remained noticeable for a day or two after the injections were made. In both cases convalescence went on without interruption.—*Philad. Med. Times.*

Parenchymatous Injection of Carbolic Acid.—Hüter strongly recommends the injection of a two-per-cent. solution of pure carbolic acid in water as the most active antiphlogistic remedy for all forms of parenchymatous inflammation. He makes the injection in the position where the lymphatics bring the acid in direct contact with the inflamed tissue. The result of such parenchymatous carbolic injection he describes, from experience, as being miraculous; and he says there are no material impediments to its use in organs such as the lungs, spleen, etc., but he has not as yet practised it in these viscera. —*Centralblatt.*

Caustic Lime in Onychia Maligna.—Prof. Vanzetti has written a pamphlet on the treatment of onychia by the application of quicklime to the seat of the disease. Having first tried the method recommended by Morehouse of using nitrate of lead, he thought he could improve on it by using some substance which would abort and dry up the pus, and accordingly tried quicklime upon two patients who presented themselves at the hospital with onychia of the feet—in one case spontaneous in its origin, in the other following an injury.

In one case the lime was left in contact with the affected part without renewal; in the other it was frequently renewed. Both did well, and had perfect reproduction of the nail.—*Lo Sperimentale.*

A New Treatment for Burns.—Dr. M. O. Baldwin, of Kansas, writing to the *Chicago Medical Journal*, advises the following treatment of burns:

For a considerable time it has been our custom to use eggs, the white and yolk together, well beaten up, as a local application, and the remedy has given a great degree of satisfaction. Our manner of applying it, is, after the eggs are well beaten, to saturate old and well-worn pieces of muslin therein, and spread over the injured surface, two or three layers thereof being superimposed; the relief is immediate and complete. The dressing should be renewed each twelve hours; meantime, should it become dry, it may be moistened by dripping water over it. After the first two or three dressings, we add a little carbolic acid and glycerine, to correct any disagreeable odor, and also stimulate the healing process. The dressing is easily removed, and leaves a clean, fresh-looking surface, not attainable under the old processes.

Anthemis Cotula as an Epispastic.—The above plant, being the common "*May Weed*," or "*Dog Fennel*," is too well known in this country to require description. The flowers of the plant resemble those of the imported chamomile, and are said to possess similar properties. In domestic practice, they have been employed as an emmenagogue, and a tea of the leaves has been found efficacious in colic and dysentery. In large doses, it is said to be a prompt emetic. But the property to which we would specially draw attention in this weed, is its power of blistering the skin. The green leaves, bruised and applied to the skin, will produce epispastic effects, equal if not superior to cantharides. If kept on long after vesication commences, they will generally make a painful and troublesome surface sore, covered with pustules, which require several days to heal—a property which may be turned to good account in cases demanding a powerful and permanent counter-irritation.

MATERIA MEDICA.

COD-LIVER OIL.

Dr. Kirchner, of Kiel, states that the cod-liver oil consumed in Germany comes almost exclusively from Norway (Bergen), where it is extracted from the liver of the Doroch (*Gadus callarias*), and of the less common Köhler (Catfish, *Gadus carbonarius*), both of which are chiefly found on the north-west coast of the Lofoden Isles. In France and England the oil chiefly used is obtained from the Kabliaus (*Gadus morrhua*), which chiefly frequents the sea off Newfoundland, but is found also around England and Greenland. The oil of the liver of certain rays, recently recommended, as that of *Raia batis*, *R. clavata*, and *R. pastinaca*, both smells and tastes very disagreeably, and has little chance of attaining any great commercial value on account of the comparative rarity of the fish. The oil is either obtained from the partially decomposed livers, which are piled on one another till the oil exudes from the pressure; or by the thoroughly decomposed livers, from which the oil has been partially extracted in the above-mentioned manner, being boiled in water; or lastly, by the boiling of the perfectly fresh livers, which have been carefully cleaned, in a water-bath. The oil obtained by the former method presents a clear, whitish tint, or a strong Madeira color, according to the degree of decomposition in the livers that has preceded the extraction of the oil. The second method yields a dark-brown oil. The third method is that adopted by Möller, who has endeavored to produce a clear medicinal oil. Among the organic constituents, the most important are the neutral fats (elain), organic acids (acetic, butyric and baldrianic), and biliary constituents (as the biliary acids and biliary coloring matter); amongst the inorganic constituents, are iodine and bromine in the proportion of about one half per thousand, phosphorus in small quantity, lime, magnesia, soda (partly as sulphates and phosphates, partly in the form of sodium and calcium chloride); also trimethylamin or propylamin. The specific gravity of cod-liver oil is lower in proportion to the clearness of its color, and its consistence is also less the clearer it is. On the other hand the capability of permeating ani-

mal membranes and capillarity are greatest in oil of a dark color, and in oil having a large proportion of biliary salts in its composition. The presence of the biliary acids is proved by the production of a cherry-red color on the addition of sulphuric acid. The degree of the rapidity of its oxidizability is tested by the addition of a watery solution of permanganate of potash (0.03—0.12 in 120). All cod-liver oils are soluble in ether. The smell of the clear oil is fishy—of the darker disgusting. The taste of the former is not unpleasant; of the latter, bitter and penetrating.

From the researches of Oswald Neumann, it appears that cod-liver oil is superior to all other oleaginous substances in regard to its easy and complete absorbability, as well as its combustibility. These qualities are partly owing to the presence of the biliary constituents; partly to the abundance of elain. The iodine contained in the oil is too small in quantity for much of the therapeutic value of the oil to be ascribable to it. The same elements are also found in nearly the same proportion in whale oil, which cannot be compared with cod-liver oil in efficacy.

In regard to the therapeutic value of cod-liver oil, some difference of opinion exists among different observers. A condition of primary importance for the use of cod-liver oil, is the absence or the removal of all symptoms of gastric and intestinal catarrh, especially, also, all external changes of the intestine, such as deposition of tubercle, or ulceration. The dose should be gradually increased; in large doses a part of the oil—about one third—is evacuated by the intestine. It is useful to allow a short period to intervene now and then, during which no medicine is administered. The best sign of beneficial influence of the oil is increase of weight. The patient should also feel more capable of muscular action, and a diminution of any abnormal secretion. An increase of colorless corpuscles has been demonstrated by English observers.

Of the many diseases for which cod-liver oil has been prescribed, tuberculosis of the lungs, scrofula, and some skin diseases, are the only ones in which it is now given.

The free use of the oil in lung tuberculosis, as by English practitioners, is materially limited in Germany, where it is considered to be of service only in the first stage of the disease, and especially when there is a well-marked scrofulous constitution. It is a valuable remedy when given in combination with careful regimen (milk cure), and with the preparations of iron. It may be much more liberally given in the various stages of scrofulosis, though here, also, attention must be paid to the diet. It is not of much service before the termination of the first dentition. It proves most valuable in those of a florid aspect,

but is less serviceable in those of a torpid scrofulous habit. Children in general take cod-liver oil better than adults; but with them, also, intervals should take place in its administration, since, as Decaisne has shown, when the quantity taken has risen to a certain amount, the body is, as it were, saturated with the oil, it ceases to gain in weight, and the appetite even diminishes. As measures aiding the action of cod-liver oil, the Sool baths and the drinking of Adelheidsquelle (Adelaide spring) water may be mentioned. The patient may also take the preparations of iron; as the ferrum lacticum, tinct. ferri acet. (Rademacher), syrup. ferri iodidi; infusion of roasted acorns with some roasted coffee mixed with it, and the pulv. cort. cinchonæ fuscæ (1 : 12). Cod-liver oil has been much recommended in rachitis. The beneficial effects obtained by the internal and external use of cod-liver oil in skin diseases, as described by Hebra, Bärensprung, Hutchinson, Lavsen, and Malumsten, have not as yet received any satisfactory explanation. The diseases in which it has been found especially useful are eczema, impetigo, psoriasis, and lupus. Very large doses, as from six to eighteen dessert-spoonfuls, are given per diem.—*Berliner Klinische Woch.*, 1874, 1, 2, and *The Practitioner*.

TINCTURE OF IODINE.

It is well known that, after being kept for a certain time, tincture of iodine is modified in its properties, and becomes unsuitable for certain uses, such as injection in cases of hydrocele, tumors, etc. Gouibourt was the first to call attention to the decomposition which this tincture undergoes, and in 1846 he brought it under the notice of the French Academy of Medicine. He rendered this decomposition palpable, by mixing with two equal quantities of water an equal weight of each of the two tinctures, of which one was recently prepared and the other was some months old. From the first all the iodine was precipitated, the supernatant liquid being scarcely colored yellow; whilst the second, in consequence of the greater quantity of iodine which remained in solution, preserved a more intense color. Gouibourt attributed this solution to the intervention of hydriodic acid which had been formed at the expense of the alcohol.

In 1850 M. Gopel presented a memoir upon the same question, and attempted especially to determine in what proportion the iodine diminished in the mixture, or in what proportion hydriodic acid was formed. For this purpose tincture of iodine was treated with reduced copper, which moved the free iodine without touching that which was in combination in such a manner that it became easy to estimate the

latter under the usual form of iodide of silver. This mode of separation, however, could not be considered as very exact, for the cupric iodide was slightly soluble and was ultimately estimated as hydriodic acid, thus affecting the exactitude of M. Gopel's results. His conclusions, nevertheless, were that in the course of time hydriodic acid and hydriodic ether are formed in tincture of iodine. Finally, in 1859, M. Commaille examined the same question, and arrived at the conclusion that the alteration in tincture of iodine, far from being rapid, is very limited, and may almost be prevented by the employment of black bottles. M. Commaille separates the free iodine from that which is in combination, by the aid of portions of starch paste, which he successively mixed with tincture until there was no further blue coloration; the hydriodic acid in the residuary liquor was then estimated as iodide of silver. This method of separating the iodine also appeared to be inexact, for the large proportion of starch would take up also a portion of the hydriodic acid. Moreover, the figures given by these authors present such a wide divergence that M. Carles has thought it desirable to publish the results of fresh experiments conducted in a different manner.

The following was the method of operating adopted:—The tincture of iodine was diluted with eight times its volume of water, and the mixture filtered in order to remove a great part of the precipitated iodine. The clear filtrate was agitated with an excess of carbonate of baryta and again filtered. The baryta which had entered into solution in the state of iodide of barium was then estimated as sulphate, which allowed of a calculation being made of the quantity of hydriodic acid formed at the expense of the alcoholic tincture of iodine. In this way the author found that a tincture, after being prepared ten months (from August to May), and exposed in a white flask to diffused light, contained 112 parts of hydriodic acid (HI) to 100 parts of tincture. M. Gopel had asserted that a portion of this acid exists in the tincture under the form of ether, but M. Carles, like his predecessor, has not been able to isolate it. The question therefore arose whether a normal tincture, to which the proportion of acid found had been added, would be susceptible of producing the bad results which are attributed to old and decomposed tinctures. Practically this has not been found to be the case, and M. Carles thinks the defect should rather be attributed to other products, the nature of which is not at present known, but which he proposes to further investigate.—*Bull. de la Société de Bordeaux.—Phar. Jour.*

ON CHLORAL AND ITS COMBINATIONS WITH ALBUMINOID MATTERS.

LIEBREICH's theory that chloral gives chloroform under the action of blood-alkali being rejected in many quarters on the ground that this decomposition is not effected by the alkaline bicarbonates, M. J. Personne has again investigated the subject, and placed the results before the Academy of Sciences of France.

M. Personne finds that not only the strong, but all the feeble alkalies, magnesia, alkaline salts—such as potassium and sodium bicarbonates and the borate and phosphate of sodium of medicine, and all alkaline animal liquids, blood and white of egg, for example—transform chloral into chloroform when the mixture is digested at a temperature of 40° C.

M. Personne also combats the theory that the difference in physiological action between chloral and chloroform is explained by the added hypnotic effect of carbonic acid, produced by combustion in the system of the formic acid, which is a second product of the breaking up of chloral. This formic acid is produced in two ways; first, chloral is split into chloroform and formic acid, according to the well-known equation,

$$C_2HCl_3O,H_2O=CHCl_3+CH_2O_2;$$

then a varying proportion of chloroform is destroyed, giving rise to a further quantity of formic acid, thus:

$$CHCl_3+4NaHO=CHNaO_2+3NaCl+2H_2O,$$

so that a complete decomposition of 10 grammes of chloral, a quantity which cannot always be administered to a medium-sized dog, furnishes 5.6 grammes of formic acid. M. Personne has dosed dogs with 10 grammes of dry formiate of sodium, representing 5.83 grammes of formic acid, and has not observed the slightest anæsthetic effect; in all cases the salt was completely absorbed, for it never produced purgation. M. Personne is of opinion that the following fact, which presented itself in the course of his experiments, throws much light on the physiological action of chloral. Fresh blood, to which chloral has been added and kept at the ordinary temperature, is completely coagulated, preserves its red color, and remains otherwise unaltered. A piece of flesh being placed in a 10 per cent. solution of hydrate of chloral pales a little; there exudes from it a reddish liquid, which soon gives a brick-red sediment. After some hours of immersion, the flesh left at a temperature of 15–20° no longer putrefies; it dries rapidly, assumes a brighter tint, and becomes so friable as to be easily

powdered. The dry matter contains chloral, and furnishes chloroform by alkalies. The estimation of chlorine, made on a sample dried at 100° C., gave 8.3 to 8.38 per cent., corresponding to 11.5 per cent. of chloral.

Albumen also combines with chloral; the compound dissolves in excess of albumen or of hydrate of chloral solution, in the same way as the compound of albumen and corrosive sublimate dissolves in excess of either of these bodies. Attempts to obtain this body in a definite form met with but indifferent success—on one occasion only it had a composition which would be represented by the formula

$$C_{144}H_{228}N_{36}O_{32}S+4(C_2HCl_3O,H_2O)-H_2O.$$

It is now generally admitted that albuminoid bodies are of the nature of amides; now, since the aldehyds form a class of compounds with these bodies, it is not unreasonable to suppose that chloral, which is only a trichlorinated aldehyd, should be able to form with them analogous compounds. Further, assuming that the action of chloral is due to the chloroform which is eliminated from it, it is very certain that this action differs from that of chloroform by its longer duration. The combination of chloral with albuminoid matters throws light on this difference, which may be explained thus:—The first action of chloral hydrate on the albuminoid matters which it meets in the animal system produces chloroform at the expense of the alkali of these albuminoid matters; at the same time these matters, impoverished or deprived of alkali, enter into combination with the undecomposed chloral, and the compound forms a sort of reservoir of chloroform, which it gives out gradually, in proportion as it is destroyed by the circulation. This fully explains why only a very small quantity of chloroform is found in the blood of animals under the influence of chloral, and justifies the use of chloral in the dressing of wounds as a powerful agent in modifying the tissues.

Chloral may be advantageously used for the preservation of easily putrescible animal substances. A cerebellum was preserved more than a month by immersion in a 10 per cent. solution. The only alteration was a slight increase in firmness. The addition of glycerine to the chloral prevents the hardening which takes place when chloral is used alone, and permits the preservation, under favorable conditions, of many anatomical preparations.

In the following note, which was also submitted to the Academy, M. H. Byasson questions the validity of the conclusions arrived at by M. Personne as given in the preceding article. He looks upon the so-called compound of chloral and albumen as only a mechanical mixture of these two bodies, and such as one would expect to get in considera-

tion of the physical constitution of albumen. This view is supported by the following experiment. He washed the pretended compound with alcohol, a liquid, which, at the same time that it promotes condensation of albumen, has a high solvent power for chloral. The washed substance, when gently dried, has the horny appearance of dry albumen, and gives a white powder. In this condition it contains no chloral; for, in the first place, it does not yield chloroform or any volatile chlorinated compound under the action of strong potash solution; in the second place, when oxidized by nitric acid and subsequently ignited with potassium carbonate, the residue contains cyanide of potassium, and gives only *traces* of chlorine. With regard to the antiseptic power of chloral, this had been previously pointed out by other *savants*, though definitively demonstrated by M. Personne. The power possessed by chloral in aqueous solution of easily penetrating the animal tissues, of causing partial coagulation of albumen and the mechanical mixture of a substance inimical to the life of inferior organisms, seems to M. Byasson sufficiently explanatory of the preceding facts. M. Byasson admits that even large doses of formiate of sodium do not produce anæsthesia; but the formiate of ethyl is a powerful anæsthetic, and it can only be argued that this action is dependent on chemical constitution, since acetate of ethyl does not produce it. When chloral or formiate of ethyl acts on the system, the formic acid is produced in the blood itself. The decomposition of chloral in the animal body being incontestable, and the trichloracetate of sodium, which under like conditions furnishes chloroform, not having an effect like that of chloral, and ethyl formiate being anæsthetic, it is concluded: 1, that the long duration of the action of chloral, as compared with that of chloroform, is due to the slowness of chemical change; 2, that the difference in physiological phenomena is explained by the added action of formic acid, produced at the same time as the chloroform and acting under special conditions. Again, M. Byasson has found that the reduction of cupro-potassic solution by the urine of persons under the influence of chloral is more feeble and less marked than that produced by urine containing an excess of uric acid; and whilst chloroform, and especially chloral, cause an abundant and rapid reduction, with formiate of sodium prolonged ebullition is necessary. —*Chemist and Druggist.*

CROTON-CHLORAL HYDRATE.

In a previous number we published a paper on the subject, taken from English sources. The following, contributed to the *American*

Practitioner by Mr. C. Lewis Diehl, of Louisville, is a fair statement of the labors of the German chemists on the same topic:—

This interesting substance was accidentally discovered by G. Kramer and A. Pinner, in 1870, when endeavoring to utilize the so-called "forerunnings" (*Vorlauf*), obtained as a waste product in the rectification of crude spirit for alcohol. These forerunnings were found to contain, besides alcohol and small quantities of an organic alkaline salt of acetic acid, and of a sharp, odorous liquid, a considerable proportion of aldehyde, which they expected to utilize in the manufacture of chloral. This expectation seemed justified by the theories of the formation of chloral generally accepted, according to which the first reaction of chlorine upon alcohol is to produce aldehyde, which by the further action of chlorine is converted into chloral; the difference in the various theories being mainly confined to the manner in which the aldehyde is so converted. Pure aldehyde was therefore acted upon by dry chlorine, and when the reaction was completed and the product was purified it proved to be entirely distinct from ordinary chloral, and was determined to be *croton-chloral.*

Preparation.—One hundred grammes of pure aldehyde (boiling-point 69.8° to 71.6° F.) is placed into a capacious flask, to which a reversed condenser is fitted, and perfectly dry chlorine is passed through the contents for four days. In the beginning the flask is kept cool by a refrigeratory mixture; but as the reaction, which is exceedingly violent at first, slackens, the cooling mixture is substituted by a water-bath, and this is very gradually heated, and toward the end of the process brought to the boiling-point. The product—consisting of a clear supernatant liquid and a dark-colored heavy oil, which congeals upon cooling—is transferred to a flask and subjected to distillation. The distillate, which passes between 194° and 464° F., is then subjected to fractional distillation, when a product is obtainable which distils completely between 325.4° and 329° F., and is found to be pure croton-chloral.*

Properties.—Croton-chloral is a liquid possessing a peculiar odor, which reminds faintly of common chloral. It forms with water a hydrate, which is crystalline, and with alcohol an alcoholate, which is amorphous. Its composition is $C_4H_2Cl_4O_2$.

Croton-chloral hydrate is produced when croton-chloral is dissolved in warm water. Upon cooling it crystallizes in white, silky, glistening leaflets, which are sparingly soluble in cold water, but freely soluble in hot water and in alcohol; and from its alcoholic solution

* My authorities omit to indicate the use of sulphuric acid to dehydrate and purify the croton-chloral hydrate formed primarily, such being undoubtedly the heavy oily layer which solidifies on cooling.

it crystallizes unchanged. It melts at 170.6° F., and is readily vaporized with aqueous vapor; its vapor being exceedingly irritating upon mucous membranes, and especially upon the eyes.

Action of Alkalies.—By the action of alkalies upon croton-chloral or its hydrate, it is not, as might be expected, split into allylchloroform and formic acid, but forms instead dichlorallylen ($C_6H_2Cl_2$) and formic acid.

Dichlorallylen is a pleasantly odorous oily liquid, which boils at 172.4° F., but is quite unstable; losing its pleasant odor, acquiring that of phosgene, and eliminating chlorine.

Relation to common chloral.—Croton chloral bears the same relation to crotonic aldehyde and to crotonic acid that common chloral does to acetic aldehyde and to acetic acid. In this connection it is of interest that crotonic acid of the composition usually assigned it ($C_6H_8O_2$) does not exist naturally in croton oil; and that consequently the artificial derivatives, based upon an acid of the composition $C_6H_8O_2$, are wrongly named after crotonic acid. An acid of composition $C_8H_8O_2$ has been obtained by Geuther and Fröhlich from both artificial and natural cyanide of allyl (vol. oil of mustard) by the action of potassa, and is by them called *tetracylic acid.* Hence, it is suggested that croton-chloral is more properly named *tetracyl-chloral.*

Croton-chloral hydrate possibly a constituent of commercial chloral hydrate.—It will be noted from the above that physically the croton-chloral hydrate differs from the ordinary chloral hydrate by its sparing solubility in cold water and in the exceedingly irritant character of its vapor. Chloral hydrate, to the contrary, is freely soluble in water, and its odor, when pure, is not irritating. Nevertheless, nearly all commercial chloral hydrate has a more or less irritating odor, and it is inferred that this is owing to the presence of croton-chloral, formed either from aldehyde contained as impurity in the alcohol, or from aldehyde generated by the action of chlorine. No experiments have, however, been made in this direction to prove the correctness of the inference.

The formation of croton-chloral from aldehyde is readily explained by the observation already made by Kékulé, that acetic aldehyde is readily transformed into crotonic aldehyde by the presence of even minute quantities of muriatic acid. Under these circumstances, two equivalents of acetic aldehyde, $C_4H_4O_2$, unite with the loss of two equivalents of water, and form one equivalent of crotonic aldehyde= $C_8H_8O_2$.

Properties and pharmaceutic exhibition of commercial croton-chloral hydrate.—I have before me a sample of croton-chloral hydrate purchased in New York; the original source is unknown. It is a

white, powdery substance, of a pearly lustre, apparently crystalline, and when triturated in a mortar has the appearance and feels to the touch like pulverized valerianate of zinc. Its odor reminds of ordinary chloral hydrate and iodoform; does not seem to be more pungent than that of ordinary commercial chloral hydrate, and not as much so as some samples I have noticed. Its taste is bitter and aromatic, reminding of the odor of iodoform. It is more soluble in cold water than I should have expected from the characteristic, "sparingly soluble," given it by its discoverers. Thirty minims distilled water dissolve one grain readily. If another grain is added to this solution, heat is required to dissolve it, and upon cooling and standing a short time, a copious crop of well-defined crystals is obtained. Subsequent experiments proved it to be soluble in between twenty-two and a half and twenty-five parts of water at a temperature of 60° F. In alcohol it was found to be freely soluble.

From these experiments it follows that croton-chloral hydrate (commercial) may be dispensed in aqueous solution of a strength corresponding to two grains in the fl. drachm. A very pleasant vehicle for its administration seems to be the simple elixir as prepared in our city, and the following prescription illustrates the manner of its use:

℞. Croton chloral-hydrate.....g. viij.
Warm water.....fl. ʒi.
Simple elixir.....fl. ʒvij.
Ft. solut.

Owing to the alcohol contained in the simple elixir, a larger quantity than two grains to the fl. drachm could, if desirable, be incorporated and held in solution by the above mixture.

The sources from which the main portion of the above paper on croton-chloral is compiled are *Jahresbericht d. Chemiz*, by Nauman, 1869–70; and *Jahresbericht d. Pharmacie*, etc., by Wiggers and Husemann, 1869–71. The original papers are to be found in the *Bericht der Deutschen Chemischen Gesellschaft*, Berlin, 1869–71.

Adulterated Serpentaria.—Recently a rhizome with its rootlets was handed to me with the statement that several bundles of it had been found in a bale of serpentaria obtained from a Western State. The adulteration was promptly recognized as the underground portion of *Cypripedium pubescens*, Lin. (not *C. parviflorum*). This differs so considerably from *Aristolochia serpentaria* and *reticulata*, that the former can never be mistaken for the latter, and the adulteration can therefore be practised successfully only when Virginia snake-root is sold in bulk. The rhizome of the latter is quite thin, rarely exceeding

one-tenth inch in diameter, the remnants of the over-ground stems are invariably projecting as short branches from the rhizome, which terminate by a scarcely concave scar. The rhizome of Cypripedium is much coarser, the stems die off to the rhizome, leaving large, deeply cup-shaped scars, the older ones penetrating deeply into the rhizome. Cypripedium, moreover, is a monocotyledonous plant, while serpentaria is dicotyledonous, and the difference in the characteristic disposition of the lignous bundles is quite evident.—Prof. J. M. Maisch, in the *Journal of Pharmacy.*

Adulteration of Taraxicum.—The editor of *The Druggist* says he believes "that four-fifths of the dandelion used in America of late years is chiccory. This custom has prevailed, because no harm has been known by it, and because no great objection has been made to it." He, moreover, roundly charges that this fraud is principally to be found in the extract of taraxicum which is imported into America from England, and says that "almost all of the imported extract is made from the chiccory intybus; and we once had an English manufacturer contend it was the true kind to use."

But neither is chiccory the only adulterant of dandelion, nor is the extract of taraxicum the only extract in which the fraud is habitually perpetrated. The editor of *The Druggist* has recently received a specimen of so-called ext. tarax., which he thus describes: It is made in Vermont, from a residuum in the distillation of the oil of fir. They put into the kettle in which this stuff is boiled down, a few dandelion tops and roots as dug up in the field, to give it a flavor, and it has a little of the odor of dandelion extract, which has been burned; by heating, the balsamic odor is more developed. A prominent manufacturing house in Philadelphia has purchased 2,000 pounds, through their agent in New York, at 14 to 20 cts. per lb., and their card rate for the same is $2.

ON THE USE OF PETROLEUM BENZINE FOR EXHAUSTING BUCHU.

BY JOSEPH P. REMINGTON.

Many uses have been discovered for petroleum benzine since it became an article of commerce, and though but recently brought to notice, its applications, from thinning white lead to purifying rare alkaloids, from dissolving india-rubber to removing grease from a silk dress, have secured for this product of mother earth a name and a place not to be despised.

The immense and overgrown development of the petroleum interest has tended to reduce the price of benzine to a very low figure: the common unpurified article is a drug in the market; and although efforts are constantly made to fit it for illuminating purposes, a means of rendering it free from liability to explode, and cause fearful accidents, is yet to be discovered.

The purified benzine commands a much better price, is put to finer uses, and should alone be used for solvent purposes in pharmacy; the common article is unfit for any purposes in a preparation, for it will be sure, from its offensive odor, to leave its tracks in it.

The first requirement, in answering this query, was believed to be to secure a good benzine. This was readily done, and an article having the specific gravity of 0.642 was obtained, which on being tested proved to be free from objectionable impurities, and no odor was left on a clean sheet of paper when a small portion was poured on it, and suffered to evaporate.

Eight ounces of finely powdered buchu leaves were taken, and firmly packed in a Squibb's glass percolator, with the siphon arrangement. It was found to be best, however, to substitute the rubber lid for one made of wood, the wooden lid having a groove cut in the under surface to fit the rim of the percolator, and at the bottom of the groove a rubber-band made the joint air-tight.

After allowing the powder to macerate for four days, the siphon was started, and the percolate, very dense and highly charged with extractive matter, came over, at first slowly, and afterwards rapidly; after two pints had passed, the buchu seemed to be exhausted, and so great had been the solvent power of the menstruum, as far as the chlorophyll and other coloring matter was concerned, that the residue looked as if it had been bleached.

The percolate was allowed to evaporate spontaneously, and the amount of oleo-resinous extract obtained weighed 305 grains. This, at first sight, was supposed to contain all of the active properties of the drug, and in order to test it, five grains were swallowed in a little water by the writer, producing, however, but little diuresis; the dose was increased to ten grains, which had but moderate effect.

Taking the dose of fluid extract of buchu at a fluid drachm, and granting that one fluid ounce of the extract represents one troy ounce of the drug, it can readily be seen, by a simple calculation, that if the benzine had fully extracted the virtues of the buchu, five grains of the oleo-resinous extract obtained would produce the same effect as a fluid drachm of the fluid extract, whilst ten grains would be a large dose.

This fact suggested that although the buchu had every appearance of being thoroughly exhausted, it might yield some activity to alcohol, and

it was then percolated with stronger alcohol, and a dense dark-colored liquid passed over, possessing a bitter taste and considerable odor.

Ten grains of this liquid produced active diuresis, and the writer has no hesitation in asserting that he believes alcohol to be much the better solvent for buchu.

Various other experiments are now under way with other drugs, but sufficient progress has been made, to justify the assertion, that the uses of benzine in this direction are circumscribed, the principal objections to its use being inflammability, great volatility, requiring the use of apparatus not always at the command of all pharmacists; the odor is objectionable generally, and in many cases could not be tolerated by a weak stomach.

NOTE ON THE PREPARATION OF EXTRACT OF KRAMERIA.

BY M. CASTEUIL PATTESON.

Two years since, the author, wishing to prepare some extract of krameria, and having only some large roots difficult to powder, had them dried. This process, however, not being carefully conducted, when the roots were percolated after maceration in water, the liquid obtained, instead of being a fine red color, was of a dull yellow. Having read that the addition of sugar increased the product, he treated his drug with sugared water and applied heat. He was surprised to find that under the influence of the sugar the red color quickly appeared, and he obtained a product consisting of equal parts of extract of krameria and of sugar, and perfectly soluble. The extract of krameria so obtained was found to be convenient as a pill mass, and could be brought to a hard consistence in a stove. In this form it preserves perfectly. Some that the author prepared two years since give at the present time a perfectly limpid solution. The warmth of the hand is sufficient to soften the mass, and in case of need exposure to the vapor of water for a few minutes will reduce it to a suitable consistence for making pills. The author states that the pills are quickly made, do not alter in shape, contain no objectionable matter, and dissolve perfectly in the juices. Some further experiments have led him to propose a fluid extract in which the menstruum consists of glycerine, sugar, and water; but this is possibly open to the objection appertaining to the use of glycerine in the preparation of astringents, referred to in the discussion at the Bradford meeting of the Conference.—*Pharmaceutical Journal.*

ON THE PREPARATION OF MEDICATED WATERS.

BY JAMES RUAN.

I DESIRE to present to the consideration of the readers of the *Journal* the following suggestion for the preparation of the different medicated waters of the U. S. Pharmacopœia which call for the intervention of magnesium carbonate in their preparation. The substance which I suggest to take the place of the latter is paper pulp, prepared from chemically pure filtering paper.

The following is the "modus operandi" which I find yields very satisfactory results: To prepare aqua menthæ piperitæ—

Take of the oil of peppermint half a fluid drachm.

Chemically pure filtering paper one drachm.

Distilled water two pints.

The paper is cut into small pieces and beaten up in a mortar with one ounce of water gradually added until reduced to a pulpy consistence; the oil is then added and triturated with the pulp until incorporated; fifteen ounces more of water is to be gradually added; the whole is then poured into a suitable sized bottle, the mortar rinsed out with the remaining pint of water, which is added to the first. The whole is then to be well shaken and then filtered through paper.

In the same manner prepare other aquæ medicatæ which call for the intervention of magnesium carbonate. Peppermint water, prepared as above, is strongly impregnated with the oil, and beautifully transparent; some which I have prepared over three weeks is still clear, with no appearance of sediment or separation of the oil.

Aqua cinnamomi, prepared by the above process, is perfectly colorless, with the odor and taste strongly defined.

In the preparation of the waters by the above process, it is well to allow them to stand a few hours before filtration, occasionally shaking so as to thoroughly disseminate the pulp through the water, thereby giving the water greater surface to act on. I think the waters prepared according to the described manner equal to the distilled. The filters can be reserved for making additional pulp. I am not aware that the process I have described has been used before, and as the results I have found so satisfactory in my case, I thought I would present the process to the *Journal* for publication.

I have prepared aqua camphoræ by the same process, first reducing the camphor to fine powder by alcohol, and proceeding as with the others.—*Am. Jour. Phar.*

Clarification of Turbid Waters.—Sulphate of aluminium and potassium, alum, or chloride of aluminium have long been used for this

purpose since, as is known, these salts are decomposed in presence of the bicarbonates of calcium and magnesium, producing hydrate of alumina, which in precipitation carries with it the substances held in suspension. In place of these substances the ordinary perchloride of iron, or rather the polybasic perchloride, may be used. This salt, introduced into turbid waters, clears them with the rapidity equal to that of the aluminum salts. Four drops of iron solution suffice ordinarily to clarify two quarts of water.

Preparation of Aqua Amygdalarum.—The method advised by A. Koster for the preparation of water of bitter almonds of officinal strength is to use the weak distillate, that passes over after the principal one, as the diluent, instead of pure water, and thus utilizes a considerable quantity of HCy, which otherwise would go to waste. He determines by the volumetric method the HCy in a given quantity of the principal distillate, and also the HCy in the weak distillate, and then adds of this latter to the former enough to bring the same to the required strength.—*Amer. Chemist.*

When Laurel Water is used as a solvent for morphia or atropia, fungoid growths do not appear; it should be used in preparing hypodermic solutions.—*Amer. Med. Weekly.*

SOME PORTUGUESE WINES.

A WRITER in *The Med. Press and Cir.* of Aug. 12, speaking of the recent exhibition of wines in London, says of the wines of Portugal that Carcavellos is not unknown in London, and although somewhat sweeter to the taste, is to a certain extent replacing sherry on some tables. It has received a great shock through the destructive prevalence of the *oïdium*, from which it is recovering rapidly. It owes much of its quality, perhaps, to its production on the upper cretaceous strata near the mouth of the Tagus, the neighborhood of the ocean being attempered by the land breeze, much as happens with the Médoc at the *embouchure* of the Garonne. This wine gains much by age, like other wines of Portugal. We need hardly say that it ranks next to Oporto and Madeira, and is no longer the monopoly of a single mercantile firm. Produced upon the lower cretaceous strata, we may mention next a red wine which is far less known than it deserves to be, and which seems destined to play a great part in the future of imported wines—this is the Collares, also from the neighborhood of the ocean and differing much from that of Estremadura wines in general,

even from those of its immediate neighborhood. This wine has less body, with an agreeable softness; it is aromatic, and slightly acidulous; it has a rather low alcoholic strength, never more than 19° Sykes. Collares costs one-and-ninepence on the spot, and the freight is moderate; it is therefore very inexpensive. This is a wine which is calculated to displace beer, and even claret. Compared with the latter it is far more nourishing and satisfying; it is far more of a wine than it; nor is it heady, like beer. Though the Portuguese are in the habit of speaking of it as their beer, it is no contemptible wine; especially the better sort. Altogether we may say of the Collares, that it is a convenience we have been slow to adopt. It may even take the place of port; it serves generally to instil gayety and promote the flow of conversation. Collares has long served the tables of the Peninsular and Oriental Company, and deserves to be far better known. It is adopted in all families who have any connection with Lisbon, or even we might say with Portugal.

IMPROVING WINES.

The process of Pasteur for improving wines (says J. M. Merrick, in the *American Chemist*), by gently heating them, is well known and practised in France. I have not heard of its application in this country, nor have I been informed that the use of neutral tartrate of potash is here in vogue to remove by precipitation a suitable fraction of the excessive amount of tartaric acid present in the juice of our native wines.

I call the attention of the readers of the *American Chemist* to these two well-known methods, because I have practised both on a small scale and can testify to their practical value.

In the autumn of 1871 I made from Concord grapes of my own raising a cask of about 120 gallons of wine, adding one and one-half pounds of sugar to each gallon of juice. This gave a beautiful bright red, clear wine, of not unpleasant flavor, and containing by my analysis, made in June, 1873, 17.5 per cent. of alcohol. The fault with it was, that it was undrinkably sour, good judges asserting that it had gone over so far that it could not be cured. On analysis I found it to contain a little more than *one per cent.* of free acid, mainly tartaric. I added in September last about seven pounds of neutral tartrate of potassa to the cask, with gratifying results. The color of the wine is lightened, the flavor uninjured, and the hardness and sourness diminished, so that the work of four or five years seems to have been done in as many months.

Mr. E. W. Bull, of Concord, Massachusetts, the originator of the Concord grape, has produced a seedling from the Concord called the Cottage, and from this new grape the past season I made about one gallon of wine, which a week ago was harsh, crude, and not palatable. By the addition of a trifling—unweighed—amount of neutral tartrate of potassa, and by heating the wine to about 50° C., its character has been so changed and improved that no one recognizes in the present mild, high-flavored, and not acid wine, the former harsh, crude, and repulsive product.

The Adulteration of Beer.—Dr. Sedejack gives the following in the *Journal of Medicine*, Brussels:—According as beer consumption increases, so does its adulteration: this has hitherto been done in secret, but now no difficulty is made, for a fabricant of the adulterations now publicly announces himself. M. Rosendorf has recently sent round a circular to the brewers, both native and foreign, to whom he recommends his "bier succédanés," or his bier surrogats. He particularly recommends his grape-sugars as being economical of the malt, glycerine to correct tartness, and concentrated bisulphite of lime to prevent secondary fermentation and acidification, as well as to render beer, when turned sour, equal to its original condition; to clarify the beer he offers an assortment of tanning substances, and also to give it a concentrated tinge. To give Bavarian beer the peculiar "bouquets" of various manufactures, he recommends tartaric acid, syrup of beetroot, etc., and to crown the work he offers to communicate to his correspondents (under guarantee of secrecy) how practically to elude extra duty. At Munich the use of hops is getting less from day to day, and these adulterations seem to exercise a most deleterious influence on the health of the population, for it is observed, since the invasion of cholera, that on every evening on which most beer is consumed there is a direct increase in the extent of the disease—thus, on Sundays and Mondays a regular increase is found to occur; with a corresponding rise in the death-rate.

TINCTURA QUINIÆ AMMONIATA.

BY JOSEPH INCE.

Some time back there was a preparation bearing this name made by dissolving one grain of quinine disulphate in one drachm of spiritus ammoniæ aromaticus. The idea was ingenious, but as a medical formula it was bad. It labored under the disadvantage of being prepared with the pharmacopœial sal volatile of that date, which was unfor-

tunate in its composition. A compound is not necessarily aromatic because strongly flavored with essential oils, and smelling violently of cloves. The tincture I had to manufacture was free from this element of failure, for I had to work with an aromatic spirit of ammonia of unexceptionable quality. Yet this quinine solution met with little acceptance, and was finally regarded more as a chemical illustration than as a pharmaceutical remedy. It was essentially too strong, and caused unpleasant symptoms in many cases where it was prescribed.

In 1853 an amended form was published, under the name of Ammoniated Solution of Quinine, by Mr. Bastick; and to that gentleman is its introduction due. This was quoted in the *Pharmaceutical Journal*, vol. xiii., p. 344, old series; and by myself in the same, vol. xv., p. 509. The subject should teach us humility, for neither Mr. Bastick, nor Professor Redwood, nor I, was able to spell correctly the Latin for proof spirit. The original formula was this:—

"℞. Quiniæ disulphatis.....gr. xxxij.
Spiritus tenuioris.....℥ iijss.
Liquoris ammoniæ.....℥ ss.

Mix the quinine with the spirit, and add the ammonia, which will at first precipitate the quinine, but afterwards redissolve it. Each drachm of this solution contains one grain of quinine. It will mix readily with water, and moreover it is necessary that it should be taken in some such fluid, as the ammonia is too pungent in the solution to be administered undiluted."

Three thoughts were then suggested:—

First, the ammonia was the one thing needful, and not any flavoring ingredients.

Second, the quinine disulphate was more soluble in spirit than in an aqueous menstruum.

Third, it seemed an unscientific thing to add water to a spirituous compound unless necessity required, and an obvious advantage was obtained.

I therefore ventured to propose another improvement, which will be found in a paper called "Trade Pharmacy."

℞. Quiniæ disulphatis.....gr. xxxij.
Spirit tenuioris.....℥ iijss.
Spirit ammoniæ.....℥ ss.
M.

Not even a gentle heat is required to effect solution, nor, so far as I have any evidence, does it undergo the slightest change on keeping.

This is the preparation mentioned by Mr. Barton, but not adopted in the Addendum. I was not aware until I read the contribution of

Mr. Edward Smith, that any pharmacists continued to use the old rudely constructed formula made with sal volatile, which, twenty-one years ago, was rejected by the public and discountenanced by the profession. No sooner did I prepare the tincture according to the last receipt, than I had to manufacture it by the gallon instead of four ounces at a time. The sale was considerable, and it was patronized extensively by West-end medical men, in spite of Mr. Umney's observation, "*Tinct. Quiniæ Ammoniata* has been seldom heard of previously." That is a question of locality.—*Pharm. Journal.*

HOW THE DISCOVERY OF MIRBANE WAS MADE.

M. Claude Collas, a French chemist, communicates to *Les Mondes* an interesting paper on how discoveries are made. He first recognized nitro-benzol, or essence of mirbane, a yellowish oil derived from coal tar, having a very sweet taste and an odor strongly resembling that of bitter almonds, which latter peculiarity has led to its extended use in perfumery. During the year 1848, he says, he was engaged in researches with a view of utilizing industrially the quantities of light oil which, having no employment and hence very small value, filled up the cisterns in gas-houses. It was at that time worth about one cent a pound. After vainly endeavoring to solve the problem for some time, M. Collas was about to relinquish the task, when it occurred to him to treat the oil in the same manner as gun-cotton, that is, with a mixture of monohydrated nitric acid and sulphuric acid. "After the operation, the acids being separated by water," he says, "I was astonished to find at the bottom of my vessel a yellow button. The oil, at first lighter than the water, had become heavier, and hence sunk. I touched it with my finger and rubbed it on my hand, when the strong characteristic odor at once became forcibly apparent. I had found an essence which, at the cheapest, could replace a substance in great demand, and which was worth, instead of five centimes (one cent), fifty francs (ten dollars), a pound.

This discovery of mirbane was, however, only the prelude of the greater one, subsequently made, of the magnificent colors which could be derived from the aniline obtained by its deoxidation by means of nascent hydrogen evolved from iron-filings and acetic acid. In 1856 Perkin obtained from aniline the beautiful violet color known as mauve, and since then the dyes thus derived have been produced to such an extent that their value to industry is almost beyond calculation. The little button of mirbane, however, in the modest laboratory of a Parisian apothecary, was the germ from which the whole grand series sprang.

There seems to be a kind of fatality about great discoveries which brings them forth in its own time. Men stumble across valuable ideas, and learn important truths too soon, which lie dead during their lifetime, only to be appreciated by the world after their death. The history of arts and sciences abounds in examples. Faraday, in 1825, found benzol in the tarry residues of gas-works, but that illustrious chemist obtained neither fame nor profit for his discovery, which would doubtless have remained buried in the archives of the British Royal Institution until the attention of the scientific and industrial world was drawn to the chemical properties of the substance, almost forty years later. Again, it often happens that discoveries escape those who are, by accident, placed in the very position to seize upon them. M. Collas cites, as evidence of this, the case of a French chemist who, in 1846, made a yellow dye for silk by the action of nitric acid on coal oil. The peculiar odor of mirbane, which he must have produced, escaped him, and he failed to perceive the new substance which he had obtained.

ON LOZENGES.

These medical sweetmeats are thus spoken of by Dr. Prosser James, in a lecture reported in the *Medical Press and Circular*:—

"Lozenges may be looked upon as the modern representatives of the ancient class of remedies termed 'hypoglottides,' and which Galen, Dioscorides, and others were accustomed to prescribe. The name was derived from the dose being placed under the tongue of the patient.

"The attention bestowed on the process of deglutition in connection with gargling precludes the necessity of considering it in reference to lozenges. The local effect of certain substances on the mucous membrane is often obtained by the employment of lozenges, which should always be allowed to dissolve in the mouth without breaking them by the teeth, and should also be swallowed very slowly, so as to prolong their action as much as possible. It is, however, to be remembered that as lozenges are swallowed their effect on the stomach is not to be forgotten. Indeed, their liability to interfere with digestion is one of their disadvantages. Some lozenges, as those containing morphia for instance, are also used for their general effects. In the British *Pharmacopœia* there are ten formulæ for lozenges. Some, as those of tannin and chlorate of potash, most useful locally; others, as those of iron and opium, for their effects on the system. The hardness of these lozenges is sometimes an objection. To overcome this, at the Hospital for Diseases of the Throat the lozenges are made of

fruit paste, such as is used in the currant lozenges to be found everywhere.

"I have had lozenges made like the ordinary jujubes. The *paté de guimauve*, so common in France, and indeed all the elegant forms of French Pharmacy, may be made equally serviceable. The most useful additions to the lozenges of the British *Pharmacopœia* are astringents. Of these krameria is one of the best, as its remote effects are less marked than those of other astringents. In tonsillitis, guaiacum has been strongly recommended by Sir T. Watson and others, and can be given in the form of lozenges."—*Phila. Med. and Surg. Rep.*

Peppermint and Sewage Irrigation.—M. Stanislaus Martin, the well-known *pharmdcien*, writing to the *Bull. de Thérapeutique*, September 15, draws attention to the great success that has attended the cultivation of this plant at Gennevilliers (see also *Medical Times and Gazette*, July 12, page 39), formerly an arid plain enclosed by one of the bends of the Seine, now a fertile garden. This has been brought about by sewage irrigation, in spite of enormous prejudices, which at one time were so great that land which now pays a heavy rental was obliged to be given gratis, in order to try the experiment. The success has been complete, as the vegetables grown attain an enormous size, and M. Martin submitted some of these to a comparative analysis. He found that the ashes of some of the plants which had undergone irrigation were richer in mineral principles than those cultivated by ordinary procedures. M. Chardin, a Paris perfumer, has utilized the sewage for the cultivation of labiated plants, and found the result so productive that he has had this year three hectares of land employed in the culture of peppermint. So vigorous was the growth, that he has had three crops in the year, and the essence produced by distillation is, he states, far superior in delicacy of aroma and taste to that imported from England, and which is so renowned.

Explosion and Firing of Volatile Oils.—A mixture of two parts of perfectly dry permanganate of potassium with two or three parts of concentrated sulphuric acid is a most powerful oxidizing agent, owing to the separation of permanganic acid and its immediate decomposition with the liberation of oxygen. Volatile oils are violently affected by this mixture, if about ten drops are placed in a little dish and then touched with a stout glass rod previously dipped into the mixture. The following produce explosions, often most violently: Oils of thyme, mace, turpentine (rectified), spike, cinnamon, origanum, rue, cubebs, and lemon. The following oils are simply inflamed, particularly if poured upon blotting-paper and touched with the mixture,

though under certain still unknown circumstances explosion may occur: Oils of rosemary, lavender, cloves, rose, geranium, gaultheria, caraway, cajeput, bitter almond, and rectified petroleum. The following substances are ignited without explosion: Alcohol, ether, wood-spirit, benzole, chlorallyl, sulphide of carbon, and cotton. Gun-cotton and gunpowder are not ignited.—*N. Repert. f. Pharm.*

A Means of Detecting Water in Essential Oils.—A French journal states that the addition of several times the volume of petroleum spirit to any essential oil occasions the separation of water in the form of little drops. The oils of lavender, canella, rosemary, sassafras, juniper, citron, and bergamot naturally contain a small proportion; oil of Portugal and oil of gaultheria contain only traces, while the oils of turpentine, cedrat, and rose are or should be anhydrous.

Ozone Generator.—The purification of the air of chambers by means of ozone has been accomplished, theoretically at least, by the invention of an apparatus which consists of a basin of water with several glass tubes, open at both ends, and enclosing sticks of phosphorus. These tubes are so placed that one end rises somewhat above the surface of the water. The whole is covered with a glass shade with several openings to admit the passage of the ozonized air. Evidently the great hindrance to the general adoption of such an instrument lies in the poisonous and inflammatory nature of the phosphorus, but the object seems so desirable, that it is to be hoped this difficulty will yet be overcome.—*Chemist and Druggist.*

Ozone.—A paper by Professor Schöne, "On the Reciprocal Behavior of Ozone and Water," has just appeared in the *Berichte der Deutschen Chemischen Gesellschaft zu Berlin.* The result of these observations goes to prove that ozone does not convert water into peroxide of hydrogen, and that ozone to a considerable extent is absorbed by water when passed through it, even at ordinary temperatures; but during this process no qualitative change was observed. Some of the ozone is lost during this absorption process, which Professor Schöne attributes to conversion into common oxygen by the action of the water. At the same time, Dr. T. Moffat, of Hawarden, has published a paper in the *Journal of the Scottish Meteorological Society,* in which, as the result of numerous observations and experiments, he is led to conclude that there is some connection between phosphorescence and ozone. He states, as is well known, that the brilliancy of phosphorescent bodies varies with the state of the weather; that the glow-worm is more luminous in unsettled than in settled weather; and that

the luminosity of the sea—produced, as is well known, by myriads of minute animals, especially the night-shining *Neries*—is a pretty sure precursor of storms. Dr. Moffat has found, when phosphorescence is scarcely perceptible or entirely absent, that similarly the ozone-papers indicate a diminution or absence of ozone from the atmosphere. There are some points with regard to these statements that we should be disposed to criticise. For instance, the ever-varying amount of electricity in the atmosphere, which has a marked influence upon the development of ozone, does not appear to have been taken into account by Mr. Moffat.—*London Med. Times.*

Carbazotate of Ammonia.—Dr. W. C. Person, writing to the *St. Louis Med. and Surg. Jour.* of July, says:—

"In malarial sections such quantities of quinine are necessary that physicians will welcome the introduction of an antiperiodic, that will prove a valuable adjuvant to, if not a complete substitute for, quinine. The objections to quinine are numerous, but the chief ones are cost, difficulty of administration, constitutional idiosyncrasy, and last, not the least, the difficulty of getting a pure article. The inducement to adulterate is too great. The quantity of quinine necessary to prevent a paroxysm of pernicious intermittent, in this section, would astonish the physicians who accept the teachings of the Dispensatory in regard to quantity. The small size of a dose of medicine is of no minor consideration to the party who takes it. Repeated disappointments in the effects of quinine last summer, induced me to experiment with a sample of carbazotate of ammonia, manufactured by G. Mallincktrodt & Co., St. Louis, Missouri. I have been using it constantly ever since, in a great many cases requiring the use of an antiperiodic, with more uniform success than I generally derived either from quinine or arsenic. Several of my cases seem to indicate that it arrests the paroxysms more completely than quinine. I have succeeded with it in cases of chronic quotidian ague of long standing, while quinia, arsenic, and the whole catalogue of tonics and alteratives had been tested thoroughly. For ordinary chills, so prevalent in the Southern States, I have ceased using quinia entirely. In order to test the virtues of the drug more fully, I divided my stock of the salt with another physician, who reports perfect success. In one case, however, it produced free emesis and intense cephalalgia, the effects of an overdose, probably. It is rarely necessary to give more than one grain twice daily, until I give six grains; before I obtain the proper effect, I have never had occasion to push the remedy to the extent of producing discoloration of the skin. I have not tested its efficacy so thoroughly in remittents as I have in intermittents. But my observation, as far as it extends,

proves it to be as effective in one form as the other. I have given it, regardless of febrile excitement, with impunity and with the happiest effect. The result of my experience is, that while quinine possesses so many valuable and varied therapeutical properties, it is not likely to be superseded by any other remedy, yet carbazotate of ammonia possesses properties which render it preferable to quinine in a great many instances as an antiperiodic, and is therefore worthy of further trial, especially by Southern physicians.

Eucalyptus in England.—In a letter to the *Lancet*, Dr. Welsh, of Kinghorn, Fife, states that even so far north as that, there is a specimen about thirty feet high growing against the residence of Dr. Boswell Syme, the well-known botanist. Its age is upwards of twenty years; and, though nearly as high as the one at Powderham Castle, cannot boast of the same girth. It bears capsules each year. During the last four years he has tried by seed, cuttings, and layers to cultivate it, but in vain. The seeds are not matured so far north; but he believes that if the seeds were imported, no difficulty would be experienced in cultivating it to any extent in this country. Another gentleman mentions that he has seen them growing at Edinburgh.

A Hill of Sulphur.—One of the most remarkable deposits of native sulphur as yet discovered is a great hill composed of the almost pure article, found some two years ago at a distance of 30 miles south of the Union Pacific Railway, and 900 miles west of Omaha. This marvellous deposit is found to consist almost wholly of sulphur, containing only 15 per cent. of impurities. The best deposits heretofore available are those found in Sicily. The principal supplies for the manufacture of sulphuric acid come from there; the deposits contain 35 per cent. of impurities and 65 per cent. of sulphur. Our Western sulphur hill, therefore, is much the most valuable, and promises to become ere long of great importance to the country.—*Tennessee Pharm. Gazette.*

A New Reaction of Alcohol.—M. Berthelot reports that in the presence of cold or lukewarm water benzoic chloride ($C_{14}H_5ClO_2$) is only decomposed with extreme slowness, but on adding alcohol to the liquid, benzoic ether is immediately formed, and is thrown down in excess. The presence of this ether becomes apparent if a few drops of the liquor are heated with a solution of caustic potash; the chloride only is decomposed, while the ether remains unaffected. This reaction is very evident with a liquid containing one per cent. of alcohol, and allows us to dispense with distillation.

Estimation of Albumen.—M. L. Girgensohn estimates albumen by mixing the solution with twenty per cent. of salt, and adding a solution of tannin in excess. The precipitate formed is collected upon a weighed filter, and the chloride of sodium washed away with water, and the tannin dissolved out by alcohol. When the estimate is made in a sample of urine, the uric acid must first be removed by adding acetic acid and allowing it to stand.

Estimation of Morphine in Opium.—*The Amer. Chemist* speaks of Hager's method, as related by Arnoldi, in the *Pharm. Zeit. für Rus.*, as one that had been found to work well, except that one digestion of the opium lime did not prove quite sufficient. Another method given in the Russian medical pharmacopœia was also found to give satisfactory results. It consists simply in thoroughly exhausting the opium with water, and weighing the insoluble residue, decolorizing the solution of morphine by means of a little animal charcoal, precipitating the morphine by addition of ammonia in slight excess, and weighing. Good opium should not have more than forty per cent. of insoluble residue, and should yield fourteen to nineteen per cent. of impure morphine, precipitated in this way.

Chemically Pure Iron for Medicinal Purposes.—We are indebted to the *London Medical Record* for the following abstract:—It is well known that commercial iron contains sulphur, phosphorus, and arsenic; that hydrochloric acid contains arsenic and sulphuric acid; carbonate of soda and water both contain sulphates. These substances, generally employed in the reduction of iron, it is difficult to obtain chemically pure. To use them otherwise, results in the production of sulphuretted, phosphoretted, or arseniuretted hydrogen, forming, during reduction of the iron, sulphides, etc., as impurities. It therefore becomes necessary to purify the hydrogen, and to deprive the oxide and the water employed of the sulphates they contain. In order to arrive at the first requisite, M. Crolas employs Dumas' and Boussingault's process, which, applied with care, gives perfectly pure hydrogen. The protochloride of iron may be deprived of sulphates by chloride of barium, crystallizing to separate whatever chloride of barium there may be in excess, dissolving in distilled water, and precipitating by ammonia (which M. Crolas finds to be free from sulphates). By this means washing the oxide is avoided, for it suffices to remove the hydrochlorate of ammonia formed and retained by the precipitate, to raise it to a nearly red heat. To avoid the formation of oxide, there is arranged between the hydrogen wash-bottles and the reduction retorts an iron tube, which, being heated and traversed by the hydrogen,

thoroughly dries the gas. Iron prepared by this process is chemically pure, and never gives rise to formation of sulphuretted hydrogen while in the stomach.

Purification of Oxalic Acid.—When it is required to prepare large quantities of pure oxalic acid, Stoba recommends crystallization from hydrochloric acid. The oxalic acid to be purified is dissolved in a sufficient quantity of ten or fifteen per cent. boiling hydrochloric acid, the filtrate allowed to cool, the mother-liquor drawn off, and the crystals washed with small quantities of water until the washings contain but very little hydrochloric acid. It is then only necessary to dissolve the moist crystals in pure water, and recrystallize the acid to obtain a perfectly pure product. It is essential in both cases to cool the hot solution rapidly, with constant stirring, to obtain small crystals, for on cooling slowly large crystals are formed, which may enclose some of the mother-liquor. Large quantities of oxalic acid purified in this way will volatilize completely if heated in a platinum crucible, without leaving the slightest residue. The mother-liquor can be employed for making oxalate of ammonia, for on neutralizing with carbonate of ammonia, most of the oxalate is precipitated, it being much less soluble in a solution of chloride of ammonia than in pure water.

Preservation of Essence of Citron.—The addition of two ounces of water to each pound of essence of citron assures its preservation, and the agreeable odor is retained for many years; the water, in falling to the bottom of the containing vessel, carries with it the mucilaginous matters which favor the resinification of the essence.—*The Pharmacist.*

Nessler's Solution for Detecting Ammonia in Water.—Dissolve thirty-five grains of iodide of potassium in ℥ iij. ʒ vi. distilled water; to this add a cold concentrated solution of mercuric chloride until the mercuric iodide at first forms, then dissolves by agitation in the solution, and at length produces a very small permanent precipitate.

One hundred grains of caustic potassa are next dissolved in ℥ vi. ʒ ij. of distilled water; mix the solutions, and add distilled water to make ℥ xv. ʒ v. This added to water containing .03 of a grain of ammonia to the gallon, will give a yellow color; a larger amount of ammonia, a brownish yellow color.

Dr. McIntire, of Easton, said, while Nessler's reaction is a most delicate and accurate test for ammonium salts, still much of the animal nitrogen may combine as nitrites or oxidize still more into nitrates,

which will not be detected by the reagent. The permanganate of potassium test will show the presence of organic matter, but does not show whether vegetable or animal. While, therefore, if ammonia is shown the water is not good, we may have water showing no reaction with the Nessler solution, and yet be not fit for use.—At a meeting of the Medical Society of Pa., May 13th.—*Med. and Surg. Rep.*

Incompatibility of Fowler's Solution and Magendie's Solution.—A paper, by Mr. J. Vanderbeugle, was read before a meeting of the Alumni Association of the New York College of Pharmacy, in which the author answered several queries relating to the nature, occurrence, and prevention of the precipitate which forms when liquor arsenicalis and Magendie's solution of morphia are mixed together. It was found that the precipitate consisted of morphia, without a trace of arsenic; that its formation is due to the alkalinity of the arsenical solution; and that it may be easily prevented by acidulating the mixture (?) with sulphuric acid.

Deodorization of Carbon Disulphide.—A great obstacle to the use of this important body is the detestable odor which almost all samples give out, and which is especially objectionable when about to be used in medicine as an anæsthetic.

M. Yvon, of Alfort, proposes a process which is at the same time rapid, economical, and effective. It consists in the addition of copper turnings to the disulphide. It is not necessary to agitate. The disulphide soon loses its color, and has then an ethereal odor free from all unpleasantness. Millon has employed reduced copper for the same purpose.

Preservation of Vaccine Lymph.—Dr. Preston spreads the lymph on a morsel of paper, by means of a camel's-hair pencil charged from the vaccine vesicle; he then allows it to dry. If the vaccine matter is to be kept a long time, the paper should be covered with a light coating of albumen. In order to make use of this prepared paper, it is only necessary to moisten it slightly with the breath, and then to apply a fragment to the abraded skin.

TOXICOLOGY.

JACOBS ON POISONING BY COAL-GAS.

Dr. Jacobs, of Cologne, who is a medical officer of health, publishes in the *Berliner klinische Wochenschrift* for July 6, 1874 (No. 27), three cases of poisoning by coal-gas. He thinks that there are no cases on record (except perhaps casual notices in the newspapers), but those of Tourdes and Schumacher (see Dr. H. Eulenburg, *Die Lehre von den schädlichen und giftigen Gasen*, pp. 165–69), and one in the *Annales d'Hygiène et de Médecine légale*. [In this, however, he is mistaken, as Sonnenschein says that the cases known are exceedingly numerous (*Handbuch der gerichtlichen Chemie*, p. 294), and the reporter finds references to other cases in the New Sydenham Society's *Year-Book* for 1859 (pp. 385 and 467), and reference to a paper by Dr. Aldis (founded on experiments on rats), in the *Med. Chir. Transactions*, vol. xlv. pp. 99 and 137. An abstract of Schumacher's cases will be found in the New Sydenham Society's *Year-Book* for 1862, p. 468. But this does not diminish the interest of these cases, more particularly as those attacked were of different ages.] On February 14, 1870, a married couple named Mathar, with a daughter aged seven, were found in their beds between 6 and 7 A.M. without consciousness or any sign of life, in a cellar at a place called Eupen. The man was forty-seven, the woman forty-six years of age. All three had been healthy. It was found that the man had played cards in this cellar with some friends till after midnight. A lamp was still burning on the table, which (as he afterwards explained), he had forgotten to extinguish; having gone to sleep very soon after going to bed, as did his wife and child. A strong smell of gas was perceptible, indeed his friends had remarked it on going home, and it was found that the main gas-pipe in the street had a large leak, and from this the gas escaped through a drain into the cellar of a house fifty paces off, and from this into the one where these people lived and slept. It must be noticed here that the cold weather from February 6 to 14 was unusually severe, and this had hindered the escape of the gas into the street. The attempts at resuscitation were successful, and received legal recognition. The poisoned persons exhibited the recognized symptoms of asphyxia, and

paralysis of the heart. As regards their recovery, it is to be noticed that trismus and tetanus lasted eighteen hours in the girl, twenty-four hours in the man, and thirty-six hours in the woman. Speech and consciousness returned in the girl after twenty-four, in the man after thirty, in the woman after forty-eight hours. They all exhibited a great inclination to sleep for many days, and suffered from constipation and retention of urine, requiring clysters and catheterism. The earthy color of the skin was remarkably shown by all three, particularly in the woman. She exhibited also, at a later date, peculiar trophic changes in the skin and epidermoid structures, consisting of œdema, yellowish-brown coloration of the skin, thickening, dryness, and desquamation of the epithelium, swelling and stiffness of the right knee-joint, and numerous spots of gangrene. On the left side of her seat there was a bed-sore as large as the palm of the hand, the same on both heels; and the skin over both trochanters sloughed, in spite of all the care of the nurses. The emaciation, lassitude, and weakness were such that it was four months before the woman could leave her bed for an hour or two, and now, after three years, she has scarcely regained her former strength. The man, too, even now, is a little weak-minded. The relation of pulse to temperature is worthy of note. At first the pulse in both man and woman was lowered, whilst the axillary temperature was raised. The child, however, had her pulse quickened, and her temperature elevated simultaneously. The woman had also horrible pain in her left leg, so that she had no rest either day or night. She described it as an unendurable burning, drawing, pinching, tearing pain, attacking the thigh, knee, and foot, but missing the tibial portion of the leg. Opium, chloral-hydrate, morphia internally and subcutaneously, quinine in large and small doses, and iron, all gave but slight and transitory relief.

Dr. Jacobs appends the following remarks:—Coal-gas is thus seen to affect the blood in its passage through the lungs, so as to render it unfit to carry on vital processes. Death is therefore not a mere act of suffocation, but just as definite a method of poisoning as that by strychnine, nicotine, atropia, or opium. The carbonic oxide of coal-gas (which is the only essential ingredient in fatal cases) possesses an irresistible property of robbing the blood of its atmospheric oxygen, and putting itself in its place. But this affects not only the central organs, but even the skin, as shown by the peculiar coloration, œdema, desquamation, gangrene, etc. Similar alterations of skin are also met with in central nervous diseases, *e.g.*, chronic desquamative myelitis. It might be thought that the smell would irritate the nose and give warning; but this case shows the opposite. All soon fell off to sleep, and lost consciousness. So Dr. Carnet's experiments with ani-

mals teach us. He experimented on a rabbit, two pigeons, and a greenfinch, with carbonic oxide. In half an hour the three first were insensible, the greenfinch dead, as well as a rat which had crawled into the chamber. The insensibility was preceded by muscular weakness, and tottering gait. This stage has, therefore, been justly called the stage of stupefaction. Giddiness, headache, nausea, an inclination to vomit, or actual vomiting, generally precede stupefaction (compare Schumacher's cases, in Henke's *Zeitschrift*, 1862, p. 40—see reference above), but the present case shows that this is not invariable. Even when roused to the danger, there may be no power to escape. The fact that the gas does not irritate the nose, lungs, etc., arises in a great degree from the fact of its large percentage of carbonic oxide, a gas which irritates none of the sensitive nerves—being invisible, tasteless, odorless, etc. It begins its insidious and fatal operation in the lungs. Trismus and tetanus were present in our cases, as in those reported in the *Oesterr. Zeitschrift für prakt. Heilkunde*, 1862, No. 49. Convulsions may have preceded these (so-called stage of convulsions), but the position in bed, and the absence of contusions, seem to negative this. Tourdes' case was fatal without previous convulsions (Tourdes, *Relat. Méd. des Asphyx. occasion à Strasbourg par le gas de l'éclairage*, 1841, p. 47). It has been propounded that "the frequency of the pulse is a consequence of the elevation of temperature." In the three cases related above, the pulse could scarcely be felt. It was so rapid in the child that it could not be counted, whilst the axillary temperature was 39.7° C. (103.46 Fahr.): the pulse and temperature were thus both high. But in the man and woman the pulse was slower than normal, whilst the woman's temperature was 40° C. (104° Fahr.), and the man's 38.5°C. (101.3° Fahr.). We might ascribe a pulse-depressing power, as regards adults, to the gas, as Hagenbach does to the poison of abdominal typhus. But this is seen at the onset of many diseases (pneumonia, cerebral pressure, etc.), whilst in children the pulse is usually quickened at first. Both in the man and woman the pulse was quickened afterwards. It was not true, however, that the pulse-frequency bore any definite relation to the duration of the high temperature. The fact of the lamp continuing to burn, without explosion, is also noteworthy. Death may also occur when the taps are turned so as to extinguish the flame, but not to prevent escape. Two servants of the Prince of Waldeck, at Deutz, were found dead in bed from this cause. The gas was not shut off at the meter, and one of the taps was not properly turned off in the room in which they slept.

Dr. W. Bathurst Woodman, who reports the above paper in *The London Med. Record*, remarks: "As regards the last case, it seems to the reporter more probable that the gas was *blown out* after having

been turned down low. He thinks that the poisonous action of the hydrogen sulphide must not be forgotten as regards ordinary coal-gas, though the blood spectra (not mentioned here) would be very different. (See Preyer, *Die Blutkrystalle*, Jena, 1871.) Dr. Aldis's rats had convulsions; it does not appear that the gas was examined as to its chemical constitution."—*London Med. Record.*

CHRONIC CHLORALISMUS.

Dr. Bonfigli (*Raccoglitore Med.*, May 10) refers to some observations on poisoning by chloral when used for some lengthened period. Dr. Kirn (*Allgem. Zeitsch. für Psy.*, xxix., p. 316) observes that, whereas he used to give from two to six grammes of chloral daily, at present he does not exceed the quantity of one to two grammes. The sedative action of chloral in disease of the brain and nerves is very variable: whilst in some patients the dose of two grammes is for a long time sufficient to produce the wished-for effect, in others the dose requires gradually to be increased, whilst in others doses of four or even six grammes have failed to produce sleep. When the drug is long used there are noticed cutaneous eruptions referrible to functional disorders of the vaso-motor nerves of the skin—chloral erythema. The author mentions the example of a paralytic man, in whom, after taking two grammes of chloral, there arose spots of roseola on the face, nostrils, cheeks, and neck. These spots came together so as to form a diffuse erythema, with swelling and augmentation of temperature in the relative parts, and they disappeared in about an hour. The same phenomena were seen in two young males, maniacal, who were taking two or three grammes of chloral as a hypnotic, in whom the chloral erythema appeared immediately after drinking a glass of beer. Sometimes there is seen, as in a patient of Kirn's, true urticaria. In the same way as the face, which with or without simultaneous exanthema becomes slightly swollen from the continued use of chloral, so may other parts of the body become altered which are in the district of the vaso-motor nerves of the skin which are paralyzed. Thus, in certain patients in the Lunatic Asylum of Illenau there was noticed a serous infiltration of the skin, dependent on the stasis and extending to almost the whole body.

The mucous membranes visible to the eye comport themselves in a manner analogous to that of the skin: the redness and swelling of the conjunctiva of the bulb, the angina, and the redness and swelling of the epiglottis, or false vocal cord, are described by different authors, and are proportionate to the paralysis of the vaso-motor centre or of

the medulla produced by chloral. Reimer first called attention to bed-sores, which are apt to occur when chloral is long continued. Disorders of respiration may be slight at times, but may arise to dyspnœa.

One lady suffered from grave attacks of dyspnœa, and was much poorer in flesh. She presented during the attacks swelling of features, palsy of the facial muscles, and symptoms of cerebral œdema; she had fruitlessly used many remedies, and seemed on the brink of the grave. By accident it was found that every evening she took three grammes of chloral. As soon as this was given up, her breathing got better. This symptom depends on the hyperæmia of the lungs dependent on the paralysis of the vaso-motor centre of the medulla oblongata.

HYPODERMIC INJECTION OF COFFEE IN OPIUM POISONING.

Charles Rawlinson, farmer, æt. 55, a recent emigrant frome Greene County, Ind., to this State, was given by his wife, through mistake for the sulphate of quinia, between ten and twenty grains of the sulphate of morphia. This occurred about 5 o'clock in the afternoon of August 19th, 1873. The family not being aware of the nature of the poison given, he was left undisturbed for about four hours, when I was sent for, and arrived about 10 o'clock, five hours after the morphia had been taken. I considered the patient moribund, in fact almost dead. The pulse had ceased entirely at the wrist, and an occasional spasmodic inspiratory effort only indicated life. The whole surface of the body was cold and livid, and covered with a clammy perspiration. The iris was not only motionless and contracted to its utmost limit, but the eyelids, when elevated, would remain without any muscular effort to close them, even when the eyeball was touched by the finger.

Although I considered the case hopeless, I went to work none the less vigorously on that account. Luckily there were six young men in the house. I immediately instituted artificial respiration, to which one attended while I prepared to inject belladonna hypodermically. Another attendant stripped the patient, another was rubbing him with dry mustard all over his body and extremities, and others bringing water. Having no atropia with me (not knowing the nature of the case when I started), I injected into each arm about 10 grains of the extract of belladonna, rubbed up with water, and then, after having him thoroughly rubbed with mustard, I placed him naked in a chair in the centre of the room, an attendant on either side supporting him, and another holding up his head. I then caused cold water, in a full

stream, to be poured on his head and spine from a height, by an attendant standing on a chair and holding the vessel as high as he could. In the meanwhile there had been made a strong decoction of coffee, prepared in the same way as it usually is taken as a beverage, only of saturated strength. This I injected hypodermically continuously, for more than an hour, as fast as I could conveniently fill and empty the syringe. In all, I injected in this manner nearly a pint, and during this whole time there was not the slightest movement of a voluntary muscle, nor any, except at intervals of several minutes, when there would be a spasmodic attempt at inspiration. At intervals of about five minutes I had him laid down on a bed on the floor and rubbed hard and vigorously with hot flannels, by as many persons as could get around him, alternating this with the cold-water *douches*. I, in the meanwhile, was perforating every eligible part of his body with the needle of the hypodermic syringe, and filling his cellular tissue with coffee.

At about the end of the first hour from the beginning of the treatment his pulse was perceptible at the wrist. Near the end of the second hour his respirations were two to the minute, spasmodic, and attended by rattling in the throat. Between the second and third hour he made an attempt to clear his throat of mucus, and moved a hand. Previous to this time I had stopped the hypodermic injection of coffee, his skin being perforated in every part where it could be done with safety, but I continued the friction and cold affusion for four hours, at the expiration of which time he was able to swallow; and then I made him drink large draughts of coffee, perhaps a quart or more, as strong as it could be made. I afterward gave him quinine and brandy, *p. r. n.*, as his pulse was feeble. By 8 o'clock next morning he could be roused up sufficiently to speak a word or two, but on my return next day he had no recollection of me or what had occurred. Catheterization was necessary for 48 hours. His memory was sadly deficient for some weeks, but he constantly improved, having "*sana mens in sano corpore*" within a month. He never once complained of soreness, as I expected he would do from the ultra-heroic treatment he had received. There were but two abscesses formed from the hypodermic medication, and they at the points where the belladonna was injected. These were small, and gave no trouble. He had a low form of fever for a few days after, which yielded readily to quinine and Thompson's Compound Syrup of Valerian.

As an unusual feature in this case, the patient says that he believes I saved his life, seems grateful, and will probably remunerate me for my services some time in the future.—James B. Garrison, M.D., De Witt, Arkansas.—*Medical and Surg. Reporter.*

THE HEART IN POISONING BY ARSENIC.

Ecchymosis of the left ventricle of the heart, or, as otherwise designated, sub-endocardial ecchymosis, is regarded by some as pathognomonic of poisoning by arsenic. Since Dr. Bonavia called attention to this livid and bruised appearance in 1866 several Indian medical officers have recorded analogous cases; these have from time to time appeared in the *Indian Medical Gazette* (vol. i., pp. 252, 302; vol. ii., pp. 120, 75, 84; vol. viii., p. 64), and in the new number of that journal we find an account of the post-mortem examination of the bodies of six individuals who died from poisoning by arsenic, recorded with care by Assistant-Apothecary Mr. Alfred Wright, of the Mysore Commission. On analysis only four of the six presented this condition in confirmation of Dr. Bonavia's observations. Surgeon E. O. Tandy described, in March, 1873, in the same journal, a case in which "the heart was full of coagulated blood, natural in size and appearance, with the exception of the left ventricle, the interior of which presented an appearance I have never seen before; there was no sign of inflammation, but in the muscular structure of the ventricle and in the columnal carniæ there were extravasations of bluish blood resembling recent bruises."

In 1829 attention was drawn to the state of the heart, particularly the left cavities, for Christison wrote: "It has been stated that the inner surfaces of the heart had been found red from inflammation. In a case examined judicially at Paris by Orfila, the left cavities of the heart were of a mottled red hue, and in the ventricle were seen many small crimson specks which penetrated into the muscular part of the parietes. Orfila adds that he had previously seen the same appearances in animals ("Archives Générales," i., 147). These observations are not quite satisfactory. There is no evidence that the observer drew the distinction between the redness of inflammation and that produced by the dyeing of the membrane with the blood after death. The subject was largely brought before the Royal Academy of Paris by M. Godard, who had also observed the appearance in question in a person killed by arsenic, and who dwelt strongly on it as a characteristic of this species of poisoning. It was distinctly proved, however, by many members present, that the appearance arises from many other causes." In respect to the preceding observations made by MM. Orfila and Godard, Mr. Wright says: "What then is the dyeing here spoken of? May it not have been the real pathognomonic condition of sub-endocardial ecchymosis of Dr. Bonavia, but, from the observations advanced being novel and unsupported, either from want of opportunities or special facts by other observers, was not maintained,"

and he thinks that Dr. Bonavia has clearly shown and placed beyond all doubt that this appearance is characteristic of poisoning by arsenic.

ARSENICAL POISONING BY WALL-PAPERS.

Dr. George Johnson, in an extremely able lecture published in the *Sanitary Record* of July 4th and 7th, collects some well-marked cases of arsenical poisoning, due to the wall-papers of rooms, his first three cases being in the persons of well-known physicians, whose sufferings were considerable, as the cause of them was unequivocal. Some of these cases are described in detail. The author goes on to show that the symptoms which are believed to have resulted from the use of arsenical wall-papers are similar to those which occur more or less constantly and severely amongst work-people who are engaged in the manufacture of arsenical pigments, or of the papers, artificial flowers and leaves, and other articles which are colored with arsenical compounds. Dr. Johnson then proceed to reply to the arguments of those who doubt the injurious effects of arsenical wall-papers, and who maintain that, if these papers were really injurious to health, their very general use for many years past would have caused numerous and not rare and isolated cases of illness. To this objection Dr. Johnson replies by saying that probably many more cases of illness have resulted from the use of these papers than are known or even suspected to have had this origin. Then the quantity of poisonous dust thrown off from an overcharged arsenical paper is so small, that those only who are more than ordinarily susceptible suffer appreciably from the inhalation of the poison. In illustration of this, various examples of idiosyncrasy are referred to. A comparison is made between the symptoms caused by the inhalation of arsenical dust and those of 'summer asthma, or hay-fever.' Happily there are few individuals so sensitive as to have their eyes and nose and throat excited to inflammation by a neighboring grass-field. Amongst workmen whose occupation compels them to breathe an atmosphere largely charged with arsenical dust, there are but few who do not suffer more or less seriously from the poison; but the comparatively small amount of poisonous dust which ordinarily floats in the air of a room hung with an arsenical paper has no appreciable effect on any but those who are peculiarly sensitive to the influence of the poison, a sensitiveness which may sometimes be shared by several members of the same family. The comparative rarity of these cases affords no reason for doubting their reality when they do occur, or the intimate relation between the symptoms and the inhalation of arsenical dust. The ex-

treme tolerance of noxious influences displayed by some individuals is as remarkable and inexplicable as the high degree of sensitiveness manifested by others. Undoubted cases of poisoning by arsenical papers are common enough, and sufficiently serious to call for an energetic protest against the continued use of such papers; and it should be borne in mind that arsenic is often present, not only in bright green papers, but in pale green, gray, and even brown papers.

Malmsten on Chronic Arsenical Poisoning.—Malmsten (*Hygiea*, 1871, and *Nordiskt Medicinskt Archiv*, 1874) relates that a laborer, aged twenty-six, had suffered three years ago from inflammation of the lungs, which confined him to bed for a long time. When he was able to get up, his feet would not support him, but gave way beneath him. Sensation was diminished in the feet and legs; he had trembling of the fingers, and occasional creeping sensations in the hands and feet. He could not support or lift any rather heavy object without letting it fall. After remaining five weeks at home, and thirteen in a hospital, sensation was entirely lost in the soles of the feet and greatly diminished in the hands. The organs of sense were normal. He improved a little under the use of baths and electricity, and after a course of cold-water treatment became quite sound. In January, 1873, after exposure to cold, he had an attack of vomiting for three or four days; he recovered from this, but three weeks afterwards had a similar attack, which lasted six days. After his recovery, he had numbness in the hands, especially in the tops of the fingers, and also in the feet, where cutting pains were sometimes felt. There was a certain amount of stiffness of the ankle and knee joints, with difficulty in walking. He had never had syphilis, and had lived in good hygienic condition.

On March 14, 1873, he was admitted into the Seraphim Hospital. His muscular structure was lax, his gait unsteady; his hands, feet, fingers, and toes could be moved without impediment. Sensation was somewhat diminished in the soles of the feet and in the palms of the hands, and electro-muscular contractility remarkably so; in the legs and forearms it was less so. He had occasional creeping sensations in the hands and feet. The strength of his hands was diminished. The intellect was unimpaired; the organs of sense were normal. His condition improved under the use of iodide of potassium and galvanism, and on May 10 he was discharged cured.

Arsenical poisoning was suspected, and after repeated questioning he acknowleged that he had taken 'merkulja' (a country name for arsenic) when he felt himself indisposed, after which his illness appeared. He had obtained the arsenic from another lad to give to horses.

Sugar and Magnesia an Antidote to Arsenic.—The *Mouvement Médicale* relates various experiments conducted by Mr. Carl, with the result of showing that sugar mixed with magnesia may serve as an antidote in cases of poisoning by arsenious acid, in which cases, too, the internal use of the hydrated magnesia is most valuable.

Poisoning with Six Drachms of Hydrate of Chloral.—Dr. Levinstein reports the case of a man of thirty-five, who was brought to a hospital at 9 A.M., having, with suicidal intent, half an hour before, swallowed six drachms of hydrate of chloral. He lay in a profound sleep, with congested face, heavy breathing, and pulse 100. Cold applications to the head. In thirty minutes the face became livid, the veins distended, respiration intermittent; temperature 39.5° C. Electricity was used, and led to regular breathing. In another half-hour a general pallor was observed, pulse gone, lachrymation, pupils contracted; temperature 32.9°. Injection of three milligrammes of nitrate of strychnine, upon which twitches were excited in the neck, chest, and the muscles of the arms and legs. Trismus now occurred, whilst the upper extremities were in a state of tetanic stiffness. With these symptoms the heart began to act again; temperature 33.3°. In a few minutes the collapse recurred, and was combated by frictions, sinapisms to the calves, and wrapping in warm blankets; temperature 34.6°. Respiration was kept up by electricity, but the circulation seemed completely arrested. Another subcutaneous injection of two milligrammes of nitrate of strychnine. Effect was the same as before; but, as respiration stopped now and then, galvanism was repeatedly used up to five o'clock in the afternoon. The patient remained, up to six in the evening, in a perfectly anæsthetic state. At seven the pupils reacted at the presence of a strong light, and the temperature was higher.

At three in the morning the sleep could only be interrupted by a strong galvanic current; but the patient swallowed a little milk, falling immediately into a deep sleep. At seven in the morning he could be roused by loud talking, and after taking milk he slept till one in the afternoon. Milk was given again, and he slept until 5 P.M., when he awoke quite refreshed, thirty-two hours after the ingestion of the chloral. No gastric disturbance whatever occurred, and he remained well for months.—*The Lancet.*

Poisoning by Vanilla-Ice.—During the last six or seven years numerous cases of poisoning by vanilla-ice have been reported in the medical journals. The particulars of some of these have already been laid before our readers. It is noticeable that most of the cases

which we can call to mind have occurred in Europe, and more especially in France and Prussia. At Berlin, during the latter part of last year, it was remarked that a large number of persons who had eaten vanilla-ice at a certain café were seized with symptoms of poisoning. These were characterized by excessive vomiting and purging, violent cramps in the calves of the legs, and coldness of the extremities. In these instances the persons recovered, but the circumstance was made the subject of official inquiry, and various experiments and chemical investigations were instituted by Dr. L. Rosenthal. The result of these were embodied in a paper read before the Berlin Medical Society, and published in the *Berliner klinische Wochenschrift*, from which it was reproduced in the *London Medical Record*. Dr. Rosenthal has collected the details of many cases of vanilla poisoning occurring under his own observation, as well as that of others, but candidly confesses that he is unable to state the precise source of the poison, other than to say that certain effects resulted from eating vanilla-ice. Whether these effects were produced by the partaking of a frozen mixture; by the materials constituting the frozen substances; or by injurious substances accidentally introduced, forms matter for discussion. That supposition that such serious symptoms should have been produced by cold is not at all tenable, as fruit ices, of similar temperature, do not produce these effects. In regard to accidental impurities, it was found that traces of lead, tin, and iron were present. The former of these was in such minute quantity that serious injury could not result, while the salts of the latter metals are not deemed poisonous. As nothing could be laid to the charge of the milk or eggs, the charge of poisoning was evidently to be placed to the account of the vanilla. This substance, as we know, is not ordinarily injurious, but Schroff, who thoroughly investigated the subject, says that vanilla pods are sometimes greased with cashew-nut oil, derived from the seeds of the *Anacardium occidentale*. The juice of this fruit is of an acrid and poisonous nature, and it is possible that the oil might be contaminated with it. Again, Schroff puts forth the hypothesis that the sharp, acicular crystals contained in vanilla may act as mechanical irritants; but this supposition is not regarded with much favor. The author advances the idea that the unripe or imperfectly dried pods may be poisonous, while those most matured by the process of drying and heating are not so. As a summing up of the whole, we may conclude that vanilla poisoning is as much a problem as ever, and that the true source of injury is as yet undiscovered.—*Canadian Jour. of Pharm.*

Toxic Action of Oxalic Acid and the Oxalates.—At a meeting of the Société de Biologie, held January 17, 1874, M. Rabuteau presented a memoir on the toxic action of oxalic acid and the oxalates, and on the methods of their elimination from the economy. After detailing the results of several experiments with the oxalates of sodium, iron, and copper, as well as with the acid itself, administered in poisonous doses to various animals, M. R. described the method of action of this agent.

He remarked that it is impossible to see in oxalic acid a corrosive poison only; in fact, one might go further, and say that the local corrosive effects are *nothing*, the general action *everything;* and that it is this action alone which is the direct cause of death, even when this ensues shortly after the ingestion of the poison.

Death has also been observed to ensue quite rapidly, without either corrosion or any lesion of the digestive tube having been subsequently established. On the other hand, the experiments which had been detailed would show oxalate of sodium to be an energetic poison without possessing any corrosive qualities.

M. R. also drew attention to the similarity between many of the effects produced in poisoning by carbonic oxide and carbonic acid on the one hand, and oxalic acid (a chemical analogue) on the other. He also described some of the symptoms of oxaluria as coming under the general head of toxic effects of oxalic acid and oxalates, formed in the system.

Finally, he strongly deprecated the use of oxalic acid in medicine, even in such form as the oxalate of iron, believing its employment to be fraught with danger.—*Phila. Med. Times.*

Tobacco in Pipes or Cigars.—According to Messrs. Vohl and Eulenberg the action of tobacco smoke and tobacco juice is not due to nicotines, for it contains none, but to pyridine, picoline, collidine, and other bases, forming a uniform series, which are produced during the combustion of the tobacco; and the reason why stronger tobacco can be smoked in a cigar than in a pipe is, that in the pipe a large quantity of pyridine is formed, which is very volatile and stupefying—while in a cigar little pyridine and much collidine are formed. The bases pyridine and picoline greatly resemble nicotine both in smell and physiological action, producing contraction of the pupil, difficult respiration, convulsions, and death.

A Case of Lead-Poisoning.—Bergeron and L'Hôte record a case, occurring in the department of the Seine-et-Marne, of the poisoning of twenty-six persons. These were supposed to be affected

with biliary typhoid fever; but two died, and examination proved lead-poisoning. It was found that the drainage-pipes into the reservoir supplying the water the sufferers had drunk of, was a tube of lead about one yard in length, which had been laid nearly twenty years. The water from this pipe behaved as a solution of a salt of lead; and the cause of poisoning was doubtless the slow absorption of the lead, as chloride dissolved in chloride of sodium.

Poisonous Univalves.—Seven individuals who had eaten snails at dinner were, so says the Montpelier *Médical*, affected with sickness, diarrhœa, giddiness, fever, etc. No doubt could be entertained as to the cause of the poisoning. The seven persons had all eaten of the snails, whereas they had not all eaten of the other dishes served up at the dinner. The pan in which the snails had been cooked was in perfect condition, and had been freshly tinned. The poisoning, therefore, took place through the snails themselves. It is well known that they often feed on poisonous plants, such as belladonna, digitalis, and hemlock, and on the fields from which the snails had been gathered were found boxwood, euphorbia, and prickwood. It is on account of this that snails gathered to be eaten are generally submitted to a few days' previous fasting.—*Food Journal.*

Danger of Aniline Red for Coloring Hair-Oils.—In our last issue we called attention to the danger attending the use of aniline red for coloring syrups, ice-cream, etc. We have lately heard of a danger attending these colors in an entirely different direction. Many hair-oils are now colored with aniline red instead of the long-used anchusa, which answers every purpose and should be continued; at least, if a change is made, something less likely to produce trouble than aniline red should be substituted.

A hair-dresser of this city had been accustomed to use a hair-oil composed of castor-oil, colored with aniline red, for dressing the hair of his customers.

A patron of the hair-dresser, who had visited the establishment several times a week for a considerable time, had on each occasion had his hair dressed with the oil above mentioned. After a time he became aware of a disagreeable itching eruption on his scalp very similar to that produced by arsenic; upon inquiry, the trouble was traced to the hair-oil, which contained arsenic present in the aniline color, and by discontinuing its use the eruption at length disappeared. Consumers of brilliantly colored hair-oils should take warning.—*The Laboratory.*

Sausages Colored by Aniline.—Aniline red is used to impart to sausages a fresh and healthy appearance. It can easily be detected by the use of alcohol or ether, either of which substances dissolves aniline, but not blood. The use of aniline red is severely reprehensible, not only from the fact that it is known to have caused the illness of entire families who have eaten meat colored with it, but also because, from its mode of preparation, it frequently contains arsenic, and must, therefore, act as a poison.—*Amer. Chemist.*

Phytolacca as a Poison for Cockroaches.—Dr. T. C. Renner writes to the Department of Agriculture that several years ago he collected some poke-root (*Phytolacca decandra*) for medical purposes, and spread it at several places about the house to dry. Soon afterward he observed that there were many cockroaches lying dead, and upon examination found that they had been partaking freely of the poke-root. Some of the root was placed near their haunts, and the result was that it rid the premises of those insects. Since then he has communicated the remedy to others, who have tested it with satisfactory results.—*Popular Science Monthly.*

Sulphate of Zinc in Rhus Poisoning.—Dr. Charles H. Humphreys, of Ohio (*Am. Med. Journal*), extols a strong solution of sulphate of zinc as curative of rhus poisoning: a half-ounce or more to a pint of water, applied every hour by means of a sponge.

LEFORT ON THE TOXICOLOGICAL INVESTIGATION OF PHOSPHORUS.

A PROBLEM of considerable importance was recently brought by a magistrate before the Society of Legal Medicine in Paris; it was this: In absence of the least trace of free phosphorus in suspected matters, and also of every characteristic morbid symptom, such as steatosis of the liver, may experts conclude—from having observed an abnormal quantity of phosphoric acid, or of ammoniaco-magnesian phosphate, in the substances subjected to chemical analysis—that there has been poisoning by phosphorus? A committee was appointed to examine the point, and the following is an abstract of the report presented by M. Lefort:

1. *Phosphoric Acid.*—At the time when poisonings by phosphorus began, it was supposed that, though the suspected matter might not present the poison in the natural state, the presence of phosphoric acid might be regarded as proof of crime. This view is now rejected by the majority of chemists. Two toxicologists of high authority, MM. Tardieu and Roussin, pronounce against it. They say "all our dif-

ferent organs and tissues, all our common articles of food, contain, it is known, very considerable proportions of alkaline and earthy phosphates, and especially phosphate of soda and phosphate of lime. The mere presence of phosphoric acid proves nothing.

This precept is of the greatest importance, and experts should never forget it, for it is the expression at once of prudence and of truth; as we hope to show from experiment.

It is worthy of remark that most chemists who have inferred poisoning by phosphorus from the existence of phosphoric acid have not taken into account that, as time progresses after death, certain organs become acid, from having been neutral, or even alkaline, during life; still less have they assured themselves as to the cause of this acidity. We know, however, that when organic substances begin to decompose, the first result observed is the formation of one or several organic acids at the expense of the sugar and the animal dextrine disseminated in the principal parts of the economy, as the liver and the muscles. It is only later that ammoniacal products appear, and that these matters become alkaline.

But this is not all. If, from the various organs, we come to the food-supply of the stomach and the intestines, we find conditions still more favorable to the formation of those organic acids which medico-legal analysis may altogether confound with phosphoric acid, more or less impregnated with phosphates. We shall see that the muscular flesh of animals contains less of animal phosphates than bread; but the latter undergoing, in the stomach, the series of phenomena of digestion, and then of fermentation, produces, from the starch of which it is largely composed, relatively considerable quantities of an organic acid, which is, without doubt, lactic acid.

One understands, then, how experts have often ascertained an exceptional acidity of some matters contained in the stomach, such as bread. But it is another thing to prove that this acidity arises from a mineral acid, such as phosphoric acid, rather than from a biphosphate or an organic acid like lactic acid, which may be fixed in large proportion in the muscular tissue. Certain experts know this so well, that they generally pass in silence the processes they have adopted for separating distinctly the phosphoric acid from the organic acids, lost, in some sort, in the animal substances more or less advanced in decomposition. The fact is, that these acids accompany each other in all the chemical operations to which they are subjected in order to isolation; so much so that still, notwithstanding the numerous works undertaken by savants of the first rank, the nature of the compound to which gastric acid owes its acidity is unknown; this being attributed by turns to lactic acid, hydrochloric acid, and biphosphate of lime.

Generally, criminal poisonings with phosphorus are effected with less quantities of phosphorized preparations than suicides by this poison. On the other hand, the first care expended on individuals who have been poisoned has the effect of eliminating, by vomiting and purging, a very considerable proportion of phosphorus more or less in the state of a simple body. It is, then, only the quantity of poison absorbed, and spread throughout the system, that experts have to isolate in the state of phosphoric acid. Some authors, Reveil in particular, suppose that it is possible to determine the quantity of phosphorus contained in a known weight of suspected matter, comparatively with the phosphorus which may be found in an equal weight of the same organ not poisoned. Your committee cannot sufficiently protest against such an affirmation; because it may lead to results much to be regretted.

Indeed, for this to be admissible, it would be necessary to suppose that the proportion of normal phosphates is absolutely the same at all ages of life, in all the organs, and that it is the same not only with man, but also with the aliments which serve for his habitual nourishment. Now this is not the case, as the following experimental data prove.

M. Verdeil has analyzed the blood of a certain number of carnivorous animals and herbivorous animals, and has ascertained that the blood of the former is much richer in phosphates than that of the latter. Thus, while the blood of man gave 9.74 of phosphoric acid per 100 parts of ash, ox-blood furnished only 3.40 for the same weight.

We have determined the proportion of phosphoric acid in the muscular flesh of a patient who died in the Hôspital de la Pitié, and found in it 0.179 per 100 grammes of fresh matter. The muscular flesh of another subject, who died rapidly from an accident, furnished 0.333 grammes of combined phosphoric acid per 100 grammes of flesh-tissue, *i.e.*, nearly double. The liver of this same individual contained 0.288 grammes of phosporic acid also in a state of phosphates. Lastly, the stomach of a woman, who died in a very few days from pneumonia, contained 0.186 grammes of combined phosphoric acid for the same quantity of fresh substance.

We may further cite as proof of the extreme variation of phosphates in the animal economy the experiments of Dr. Bence Jones, who found that in 1,000 grammes of urine the earthy phosphates reached before meals 0.21 to 0.75, and after, from 0.97 to 1.91; in the same quantity of urine the alkaline phosphates varied, before meals, from 6.5 to 8.1, and after meals, from 4.72 to 6.67.

M. Couerbe long since discovered that the brain of idiots and old people was always less rich in phosphorus than that of healthy adults. On the other hand, M. Bourgoin has shown that the proportion of phosphorus in the brain is never the same in different individuals, and

that even in the white and the gray matter of the brain this quantity may vary by nearly a third.

According to M. Roucher (one of the committee) 100 grammes of matter from the following organs of a subject dead from atrophy of the liver, contained of phosphoric acid (free or combined)—liver, 0.517 grammes; lungs, 0.205; kidneys, 0.274. The same organs of another subject who died poisoned with phosphorus, furnished—liver, 0.493 grammes; lungs, 0.274; kidneys, 0.339. Thus the liver of the subject poisoned by phosphorus furnished to analysis less phosphoric acid than that of the individual who died from atrophy of the liver.

It is true that the lungs and kidneys of the second contained more phosphoric acid than the same organs of the first. But who could affirm with justice that there had been ingestion of phosphorus, because the lungs and kidneys of an individual said to have been poisoned contained six to seven centigrammes of phosphoric acid more, for the same weight of substance, than those of another individual who died under normal conditions? The mode of analysis adopted in the circumstances could not even guarantee this difference. On the other hand, it should not be ignored that the system contains, under the name of protagon, a complex animal matter in which phosphorus is in the state of a simple body, but molecularly united with oxygen, carbon, nitrogen, and hydrogen.

We have submitted to analysis a certain number of organic matters, more especially utilized for the food of man; and the results are these.

One hundred parts of fresh food contained of phosphoric acid—

	Grammes.
White bread (crumb and crust)	0.049
Beef (fillet)	0.395
Veal do.	0.374
Pork do.	0.430
Carp (muscular flesh of back)	0.345
Pike do. do.	0.465
Ray do. do.	0.514
Mackerel do. do.	0.533
Brain of ox (gray and white substances)	0.502
Brain of sheep do. do.	0.760

We call to mind that Dr. William Marcet has communicated analyses of muscular flesh of ox, taken from various subjects, in which the proportion of phosphoric acid varied from 0.404 to 0.438 per 100 grammes of fresh substance.

These examples serve to show how variable is the proportion of phosphates in the principal aliments of man, and how difficult it is, not to say impossible, to pronounce upon the part belonging to the

phosphoric acid of these normal phosphates and the part of phosphorus introduced criminally. Toxicological chemistry should carefully record these facts, for they present the safeguard of justice. We say therefore, in concluding, that *the proportion of phosphoric acid found in suspected matters subjected to chemical analysis is not a convincing proof that there has been poisoning by phosphorus.*

2. *Ammonio-magnesian Phosphates.*—Is the presence of a comparatively large quantity of crystals of such phosphates in putrefying animal matters the indication of an ingestion of phosphorus during life?

The proportion of these crystals has always been subordinated to that of the phosphates, whether normal or accidental. Whenever a dead body, buried some time, is in active decomposition, the large quantity of carbonate of ammonia produced, the magnesian salts of the organic matter, or even those which are brought by water of the grave, and lastly, the normal phosphates, produce by their special affinities ammonio-magnesian phosphate, which crystallizes more easily the more ammoniacal the medium in which it is formed. It is, however, to the abundance of these crystals in suspected matters, that, in some medico-legal investigations, recourse has been had for concluding that poisoning by phosphorus has taken place.

Your committee rejects absolutely on this evidence, because it is not convincing in the least. We have only to cast our eye over the preceding table to be convinced that the quantity of normal phosphates is more than sufficient to produce in animal matters that are in course of decomposition crystallized ammonio-magnesian phosphate, very visible to the naked eye, and still better with the microscope.

Consider, *e.g.*, that muscular tissue contains normally, and on an average, four-thousandths of combined phosphoric acid. If, by calculation, we convert the whole of this acid into ammonio-magnesian phosphate, we find that there may have been formed 13.80 grammes of this salt, easily distinguished by its great insolubility, and the regularity of its crystallization; and yet we are supposing that the waters of infiltration, which very often permeate the graves of cemeteries, do not bring with them phosphates which might increase those of the bodies.

What, then, is the share to be assigned to normal phosphates and to phosphates arising from ingestion of phosphorus? It will not be forgotten that phosphorus is a poison of great energy, and that it can only, in general, be administered in the smallest quantity, because its special characters (odor and phosphorescence) soon reveal a criminal intention; lastly, that it is rather a poison of contact and absorption than a poison of localization, and, consequently, the system cannot long

accumulate it in the framework of the tissues. Every one knows, besides, that the absorption and elimination of phosphorus are so prompt that the first urine of the individual poisoned in this manner is luminous, and yet death may not occur for seven or eight days after ingestion of the poison.

Such are the considerations which lead us to conclude that neither the presence nor the quantity of phosphoric acid and crystals of ammonio-magnesian phosphate in suspected matters can be considered as proof of poisoning, by phosphorus in the natural state.—*London Med. Record.*

Compositions of Cosmetics, Hair-dyes, etc.—Professor J. M. Merrick has made analysis for the Boston Board of Health of the following substances, and the results have recently been published in the Report of the Board.

HAIR DYES.

The following tables show, at one view, the amounts of lead contained in the various preparations, No. 1 excepted:

		Grains per fluid oz.
No. 2.	Chevalier's Life for the Hair (fluid)	.21
No. 3.	Ayer's Hair Vigor	2.38
No. 4.	Phalon's Vitalia	13.89
No. 5.	Ring's Ambrosia	5.09
No. 6.	Mrs. Allen's Restorer	5.41
No. 7.	Hall's Renewer	5.05
No. 8.	M. Washington Restorer	9.20
No. 9.	Singer's Restorer	11.30
No. 10.	Grey's Réstorer	3.35

It would hardly seem probable that any one would persist in the use of washes and dyes like the above, after knowing their composition and probable tendency. These hair preparations depend for their value upon the chemical action of a salt of lead and sulphur. The black sulphide of lead, formed in and upon the hair, changes its color for the time being. There can be no doubt whatever that the use of these nasty preparations is attended with much risk, from the absorption of lead into the pores of the skin. Two things are very striking in view of these analyses, viz.: first, the fact that preparations whose base is metallic and poisonous should be advertised as vegetable, and urged upon the public as renewing or "rejuvenating" the hair; and second, the enormous disproportion between the cost and selling price of these dyes. The cost can be but a few cents for the preparation and the bottle, and the selling prices are from 75c. to $1.50.

COSMETICS, ENAMELS, POWDERS, ETC.

No. 1. Phalon's Paphion Lotion, or Floral Beautifier—Milk of Almonds, chalk and water; no lead.

No. 2. Piesse and Lubin's Pestachio Nut Skin and Complexion Powder—Finely divided and perfumed silicate of magnesia or talc.

No. 3. Wells' Lily White (powdered)—Finely divided and perfumed chalk, some carbonate of magnesia, and little silica.

No. 4. Cream Imperatrice—Sixty-six parts oxycarbonate of zinc and thirty-three of fat or grease, highly scented.

No. 5. Hagan's Magnolia Balm—66.50 grains oxide of zinc for each ounce fluid.

No. 6. Oriental Cream, or Magical Beautifier—31.50 grains subchloride of mercury to each fluid ounce.

No. 7. Perry's Moth and Freckle Lotion—Contains mercury, lead, zinc, and bismuth.

No. 8. Burnett's Kalliston—Free from metals.

No. 9. Enamel, for the complexion—Has a sediment of oxide of zinc.

No. 10. Lotion (label lost)—Contains lead, with oxide of zinc.

No. 11. Email blanc de Paris—Free from metals.

Perry's Moth and Freckle Lotion contains three virulent poisons in considerable quantity.

Some of the enamels contain oxide of zinc, or oxide of lead, and so far are to be put down unsafe. When they consist of carbonate of lime, talc or magnesia only, they cannot be called poisonous, and yet they can hardly be said to be free from an injurious tendency, as their application to the skin must result in closing its pores and checking its proper action. As in the case of the hair-dyes, there was exhibited an enormous disproportion between the cost of the materials of which these cosmetics are made and their selling price.

Case of Poisoning by Digitalin.—Dr. Maguire writes a letter to the *Gaz. Hebdomadaire*, July 24, 1874, giving a case of accidental poisoning by this drug. The case was that of a woman suffering from some affection of the heart, for whom he had prescribed a granule of digitalin every evening.

The patient took it upon herself to swallow a *pinch* of granules,—an amount equal to one-fourth grain. In a few moments she was attacked by extreme præcordial anxiety, cold perspiration, nausea; finally, at three o'clock in the morning (six hours later), she vomited a small quantity of greenish, glairy matter, and experienced severe pain in the region of the stomach. Examined at eight o'clock the next morning, the præcordial anxiety had increased, and the vomiting was

recommenced as soon as any liquid was taken into the stomach. The pulse was 90, and full, the action of the heart rhythmical and strongly accentuated, the face pale, the pupils normal, no headache, but cold perspiration, general malaise, bitter taste in the mouth; finally, the patient urinated very abundantly, without pain in the renal region; she preserved perfect consciousness. A cup of coffee containing a pinch of tannic acid was immediately administered. At eleven o'clock in the morning—that is, fourteen hours after the ingestion of the poison—the patient was seized with atrocious cramps in the thighs, calves, and feet; these pains returned every fifteen minutes; the pulse beat 104, full, regular, without intermissions. At 5 P.M. the pulse was 60, somewhat irregular: the face was injected, feebleness extreme, vomiting less frequent, pain diminished, tongue dry. The urine, which had been secreted very abundantly during the day, became entirely suppressed the following night. A little milk and soup were given, and were retained by the stomach. During the next day the patient's condition gradually improved; by night the pulse beat 72, rarely intermittent. In the course of the following day all symptoms improved, the bitter taste in the mouth and the extreme feebleness alone being persistent for some time.—*Philadelphia Medical Times.*

Contamination of Aerated Waters.—The case of lead-poisoning by soda-water, reported this week by Dr. Wilson of Campsie, which has attracted public attention, has a close parallel in the results reported a few months ago by an eminent London hospital physician in the *British Medical Journal.* In that case also, the examination of a number of specimens of aerated water in the laboratory of Messrs. Savory and Moore, proved them to be all dangerous to health. These waters were sold in syphon-bottles, in which the danger of metallic poisoning (from the avidity with which alkaline waters charged with free carbonic acid will attack metal) is much greater than in the case of waters sold in ordinary glass bottles. There is, however, a much greater and more common danger in the artificial aerated waters of commerce than that of metallic poisoning. Chemical examination has proved what the palate, though without discovering the reason, will often detect, that a great number of these waters are made with well-water which is highly contaminated with organic matter—in fact, laden with sewage. It is not very uncommon, on opening a bottle of soda or seltzer water which has been kept long, to find that it positively stinks, and a very perceptible flavor of sewage is quite common in these bottled artificial waters. The whole subject was investigated a few years ago by the medical paper which we have already mentioned; and the result of the chemical examina-

tion was to show, first, that what is sold as soda-water is commonly, in fact generally, not soda-water at all, or in any way alkaline or antacid, but gaseous water; and secondly, that the average purity of the water itself was considerably less than that of London drinking-water, and that some of the samples purchased and examined were excessively foul, in truth, little better than aerated ditch-water.—*London Medical Record.*

ACUTE POISONING BY CHROMATE OF LEAD.

Two fatal cases of acute poisoning by chrome yellow are reported in the *Vierteljahrsschrift für Gericht Medicin* of January, by Dr. von Linston. These cases occurred in children aged respectively $1\frac{3}{4}$ and $3\frac{1}{2}$ years, and the poisoning was caused by sucking an unknown number of small yellow substances which had been used for ornamenting pastry, and which consisted of gum tragacanth and chrome yellow.

Chromate of lead, on account of its insolubility, has never been considered to be an active poison, and the fact that it is used so largely as a pigment for coloring not only ordinary substances, but also children's playthings, and even articles intended for food, such as confectionery, etc., renders these cases of more than ordinary interest.

The extent of its use in confectionery can be seen by an examination of the report of analysis of confectionery, by H. B. Hill (*Mass. State Board of Health Report*, 1873, p. 390). Thus 77 samples, both white and colored, were analyzed: 21 were colored yellow, and in 17 of these the pigment consisted entirely of chrome yellow, in 2 partially; of 12 specimens which were of an orange color, the pigment in 9 consisted entirely of chromate of lead, and in 2 partially; 7 specimens of gum were examined, 6 of which contained chrome yellow mixed with Prussian blue in 5 specimens, and with Scheele's green in the other. Of the 77 specimens examined, 36, therefore, contained the chromate of lead.

The symptoms of poisoning did not commence until several hours after the ingestion of the chrome yellow, which took place between 9 and 11 A.M. Both children were taken sick at the same time (between 2 and 3 P.M. of the same day) with vomiting, which lasted for several hours. The vomitus was yellow in color. There was great prostration and extreme thirst, but no diarrhœa and no pain. On the second day both had a hot and red countenance, and were stupid. The younger, about 24 hours after the commencement of the symptoms, had a slight diarrhœa and convulsions, which continued until death, which took place in 48 hours. On the third day an erythematous eruption appeared on the chest and abdomen of the elder. He was dull

and stupid, and the temperature in the axilla was 39.5 C. On the fourth day the pulse and respiration became irregular, the breath extremely fetid; stupor and unconsciousness came on, and the patient died five days after the ingestion of the poison.

After death the mucous membrane of the stomach and duodenum was found swollen and loose, so that it could easily be raised from the submucous tissue; it was inflamed, as was also that of the œsophagus, throat and larynx. In some places the mucous membrane of the throat and duodenum was entirely destroyed, and in one spot perforation had taken place, showing that chrome yellow had a corrosive action. These appearances were probably not caused by the chromate of lead, as such, but by soluble compounds formed after the pigment had lain in the stomach for some time, and had been decomposed.

Besides the above appearances, there were found also hyperæmia of the brain and its membranes, beginning fatty degeneration of the liver, commencing icterus, commencing hyperæmia of the kidneys, suppurative pyelitis, and a softened spleen—conditions which are often seen after death from poisoning by other corrosive substances.

The number of these yellow ornaments ingested by the children could not have been more than six, since only seven were given them to play with, and one was afterwards recovered. If each child had eaten three of these, the fatal dose was less then 0.01 grain, or between $\frac{1}{8}$ and $\frac{1}{9}$ of a grain of the chromate of lead.

REUMONT ON METALLIC POISONING AND ITS TREATMENT BY MINERAL WATERS.

There are two kinds of quicksilver disease; that of artisans, which is produced in the practice of various arts in which mercury is employed; and medicinal mercurialism, which is produced by mercury introduced into the system for medicinal ends. Both sorts are in their nature very similar, and differ chiefly in the degree of acuteness of their symptoms, and according to the presence or absence of combinations with affections of the system previously existing—especially syphilis.

Of the alteration produced in the blood by mercury we know little, and that little is contradictory. Overbeck's careful researches lead him to believe that mercurialism produces a sort of anæmia; that in mercurial blood the quantity of blood-corpuscles and of albumen is diminished, while its coagulability is increased, and its amount of water is fluctuating. It seems to be established that all preparations of mercury, if introduced into the system in sufficient quantity, induce an

increased excretion of bile, and sometimes a passage of albumen through the urine.

As to the form in which mercury quits the system, little is known with accuracy. In the alimentary canal it is found as sulphuret of mercury. It is not determined in what shape it appears in the perspiration. As to the stories of metallic mercury being given out in baths, they require no serious consideration; although it is certain that gold and silver articles worn by those who are taking mercury occasionally become stained by an amalgam. It has been concluded that mercury in the urine is in the shape of an albuminate, chiefly because the urine of patients under mercury often contains albumen. On the whole, the view of Overbeck is probable, that mercury is not eliminated from the system until it has been sepatated from its albumen.

The question how long mercury remains in the system is one of practical importance. The anti-mercurialists speak, in support of their favorite views, of its remaining many years in it; but there is no proof of this. According to Overbeck and Waller, the spontaneous elimination of mercury proceeds slowly, and may occupy seven months, or even longer. Kussmaul speaks of many months, up to twelve, and even more. The organs which appear to retain the mercury the longest are the liver and the kidneys, and the liver contains most.

Kussmaul and Overbeck have done the great service, by their researches, of dispelling in a great measure the mistaken views which have prevailed among physicians respecting the relation of syphilis to mercury. "A twofold picture of mercurialism," says Kussmaul, "runs through our literature; one painted by those who have studied it as it occurs among quicksilver workmen, the other by those who study syphilis. The first picture has altered little in the course of time; the second has always varied according to the course of opinions on syphilis. A set of fanatical anti-mercurialists put down every ailment in the whole course of the life of a man who may have once taken a few grains of mercury for syphilis, to the account of the metal; and looked on syphilis as a very mild disease, unless aggravated by the use of mercury. The most violent even denied that there was such a thing as syphilis, regarding it only as mercurialism."

In its best-marked and really frightful form, true mercurial disease is rarely witnessed except in quicksilver workmen; it shows itself in a much milder form in those who have used mercury only for medicinal purposes. In the mercurialism of artisans there are three stages of development,—the stage of erethism, that of tremor, and the final stage,—although there is no marked line of distinction between them. In all stages, the nervous system is affected in a marked degree. Such marked stages are seldom or never to be seen in mercurialism from

the administration of the metal, and the symptoms are seldom simple; they are almost always combined with those of syphilis or of some other disease.

The pure symptoms of mercurialism occurring after the medicinal use of the metal that occur most frequently are either general or local: anæmic and chlorotic conditions; disturbance of nutrition, showing itself chiefly in emaciation and in muscular weakness; gastric and febrile conditions; affections of the nervous system, such as painful sensations, gnawing rheumatic pains, tremors, and paralysis: and, consequent on these, swimming in the head, loss of memory, etc. But these last symptoms undoubtedly belong more or less to syphilis also. The commonest local symptoms are shown in the mucous membrane of the mouth, the tonsils, the salivary glands, and, in fresher cases, in the mercurial rashes.

In both mercurial and syphilitic affections there is a certain alteration in the blood; but it must vary in the two, as the symptoms to which it gives rise are very different. In syphilis, one of the first symptoms is the swelling of many of the lymphatic glands, whereas we have only rarely in mercurialism some swelling of the cervical glands, as a consequence of stomatitis. The pathological productions of the two diseases are very different. The mercurial dyscrasy must be viewed, on the whole, as a catalytic process, which has little to do with new or plastic formations, and which, at most, causes some thickening of the mucous membranes and the enlargement of a few glands; while syphilis shows the greatest tendency to hyperplastic and new formations. Soft nodes (gummy exudations) occur in syphilis only.

As regards the further question whether mercurialism does not impart a malignant character to syphilis, we may reply that the worst forms of syphilis occur in those who are not treated at all, or certainly not with mercurials; while we grant that the solvent action of mercury may be prejudicial in phagedenic and sloughing ulcerations. As to the affections of the bones ascribed to mercurialism, we have already said that only local ones of the jaws, connected with profuse salivation, are ever produced.

If lead be introduced into the system for any length of time, in small quantities, the characteristic symptoms of lead-poisoning are produced. Lead is partly inhaled in extremely minute particles, partly taken up in the intestinal canal, partly introduced through the skin, or through the nasal passages in snuffing into the circulation. It is probable that all preparations of lead become converted in the intestinal canal into albuminates, which, being dissolved in the stomach, are partly introduced into the system. It is not known in what form it exists in the blood, but it occurs in it in smaller quantities than in

other parts of the system. From the blood, the lead passes into the parenchyma of various organs.

Little is known of the mode of operation of lead in the system, though it has been generally believed that it has a special affinity for the voluntary muscles, and occasions paralysis of them and loss of their electro-muscular contractility. But Heubel has recently arrived at some important conclusions. He finds that the relatively greater quantity of lead accumulates first in the osseous substance, and next in the kidneys. After this come the liver, the central portion of the nervous system, and only after these the muscular and intestinal fibres. Heubel, therefore, rejects the theory that blood impregnated with lead has a power of contracting the muscular coats of arteries and of veins. Heubel, regarding the liver and kidneys as being merely the organs that eliminate lead, and on that account contain a large portion of it, thinks that lead has, on the whole, the greatest affinity to the nerve-substance.

The elimination of lead from the system, apart from what passes through the intestinal canal as sulphuret, takes place most frequently through the biliary secretion. It has been assumed that lead is eliminated through the skin, owing to the dark color of the skin after sulphur-baths, which has occasionally been observed. The occurrence is undoubtedly very rare, and is explained by the action of the sulphur of the water on particles of lead lying in the folds of the skin.

Lead-poisoning has of late years become more frequent, owing to the use of cosmetics and of snuff containing the metal. It sometimes requires much discrimination on the part of the physician to discover it. The blue line on the gums is often a most valuable sign. The peculiar symptoms of saturnism are, according to their frequency, lead-colic, pains of the joints, paralysis, affections of the brain, anæsthesia. The characteristic paralysis attacks most frequently the fingers, the hands, and the forearms; less often, the lower extremities. The great characteristic is the loss of extensor, not of flexor, power.

As to other metallic poisonings, chronic arsenical poisoning is rare. Some doubt whether there is such a thing as chronic copper-poisoning, but paralysis of the extremities is said to characterize it.

It would be very desirable to explain how sulphur-waters are able to fulfil the indication of disengaging the metal stagnating in the system, and of causing its quicker elimination through the skin, liver, and kidneys. To account for it, Astrie has propounded the theory with reference to mercury and to lead, that the sulphurets of the alkalies and the sulphate salts render the metallic albuminates soluble, and that the albuminates, having been made soluble, are conveyed out by

means of the secreting organs, whose functions have been heightened by the whole process of a water-cure. Probably the sulphur-waters act in this case by dissolving the protein compounds. For the present we must be satisfied to use such chemical views as working hypotheses, and indeed they are supported to a considerable extent by clinical observation, although there is no doubt that there are other factors concerned in the elimination of metals.

We know, as yet, few facts which prove direct elimination of metals by the use of sulphur-waters. The occasional occurrence of mercurial stomatitis and salivation during a sulphur-water cure in patients who have used mercury even at a considerable distance of time, can only be explained by the blood's taking up metal which had been combined with the tissue of organs. There are analogous cases of the reappearance of symptoms of lead-poisoning in patients who had been apparently cured of it. Although we can receive only with the greatest reserve old and new stories of metallic quicksilver being found in the baths used by mercurialized patients, or in their cutaneous eruptions during a bath-cure, yet it would seem that the metal is sometimes eliminated through the skin. Besides the case quoted by Overbeck, two cases have occurred to me (Reumont) and to my colleague Diemer, which can scarcely be interpreted in any other way than as instances of elimination of mercury in the form of sulphuret in the perspiration. I have in strongly mercurialized patients observed, by the electrolytic process during the cure at Aix, mercury in very minute quantities in the urine. Hemmann, of Schinznach, has made the statement that he has washed metallic mercury from the fæces.

Like mercury, all other metals must, under treatment which relieves the symptoms, be extracted from the tissues. And when Tanquerel speaks of a black appearance of the skin in cases of lead-poisoning treated with sulphur-baths, he attributes this, as has been already remarked, to the union of sulphur with minute portions of mercury in the folds of the skin. I have (says Reumont) several times observed somewhat similar effects in those treated with mercurial inunction and sulphur-baths.

But much more important for the physician than the theory of their operation is the clinical observation of the value of sulphur-waters in metallic poisonings. The mercurialism of artisans naturally is seldom sent for treatment to baths, whereas medicinal mercurialism is very common, and very frequently complicated with syphilis. Some of the most renowned practitioners bear testimony to the value of sulphur-waters in such cases. Robbi commences his cure with sulphur-baths, Himby recommends them in mercurial amaurosis, Horn and Romberg in tremor, Roth in mercurial hoarseness. Many French, Swiss, and

German physicians, besides those of Aix-la-Chapelle, are equally loud in their praise.

As to the method of using sulphur-waters in such cases, it is necessary to introduce the sulphur into the blood in every variety of way. Baths, drinking, and inhalations all come into play, and douches or vapor-baths are of special use in helping the elimination of the metallic molecules.

Chronic lead-poisoning has of late years been pretty frequently treated at sulphur-baths; it has generally been caused by food or drink containing lead, by cosmetics, or by snuff. Men of great clinical repute, as Schönlein, Romberg, Autenrieth, and many others, have had the greatest faith in its treatment by sulphur-waters. I myself have cured by them various cases of paralysis and colic induced by snuff.

There are very few notices of the treatment of arsenical or copper poisoning by sulphur-waters. But there are a few successful cases on record. I myself treated with success a case of arsenical poisoning brought on by stuffing animals with arsenical paste.—*London Medical Record.*

PRESCRIPTIONS AND FORMULÆ.

Cucumber Ointment.

Cucumber oil,.....2 troy ounces.
Oil of almonds,.....3 " "
Spermaceti.....1 " ounce.
White wax.....120 grains.

Dissolve the spermaceti and wax, shaved fine with a knife, in the oil of almonds previously heated to 130° F., with constant stirring, then add the cucumber oil after removal from the fire, and stir constantly until it thickens on cooling, when it should be prepared for dispensing as above, or put in a single jar as desired.

Thus made, the consistence of cucumber ointment differs from that made with suet, being more like rose-water ointment, than which it keeps much better, being free from moisture. If put up in small glass jars these should be kept from the light.

Cucumber Oil

Is prepared as follows:

Cucumbers, well ground,
but green and fresh,.... 160 troy ozs.
Oil of sweet almonds..... 16 " "

Grate the cucumbers, with paring, on a tinned iron grater, express the juice and strain it through a close cotton cloth. Put half the juice in a gallon bottle, add the oil, cork the bottle, and agitate them together at short intervals during several hours, let the oil rise to the surface, decant the exhausted juice and replace it by the remainder of the juice, again agitate freely and repeatedly, allowing twenty-four hours to elapse before setting it aside to separate. Then decant the exhausted juice and throw it away. (The decanting is most easily effected by fitting another cork, with a tube passing through it nearly to the bottom of the bottle, carefully inverting the bottle, and when the upper layer of oil, which is apt to be slightly emulsified, has separated, loosening the cork until the watery liquid has nearly all passed out.) Finally, separate the oily layer as much as possible from water, and pour it on a carefully prepared plaited filter, which, whilst folded, has been dipped in oil of almonds, drained and spread in a suitable funnel, observing to press the folded point a short distance into the neck of the funnel before pouring in the oil. The filtration proceeds regularly, a bright oily filtrate, having a decided odor of cucumbers, is obtained, and generally, toward the last, a little water, if much of the oily layer was emulsified when pouring on the filter. This collects on the bottom, and the oil can be nearly all poured off.—W. Procter, Jr.

Solution Citrate Magnesium.

J. C. Wharton, in the *Tennessee Pharmacal Gazette*, suggests the following improvements in making this preparation. They do not involve any alteration in the finished article, being simply changes in the manipulation. One is the substitution of calcined magnesia for carbonate, in the quantity of 88 grains of calcined magnesia for 200 grains of the carbonate. The advantage derived from the use of calcined magnesia, is that a considerable amount

of heat is evolved, which aids in making a rapid solution. Another alteration is in using a solution of 20 grains of bicarbonate of potassium in one ounce of simple syrup, flavored with two minims of spirit of lemon. Two ounces of this syrup are used in place of the syrup of citric acid. The proposed new form is, in short, as follows:

℞ Calcined magnesia.....88 grs.
Citric acid.....408 "

Dissolve with 1½ oz. of water in a mortar, then add sufficient water to nearly fill the bottle, in which has previously been placed two ounces of syrup of bicarbonate of potassium. Pour in the solution carefully so as not to mix with the dense syrup at the bottom of the bottle, cork, tie down, and, on shaking the bottle, the solution is ready for use. The chief advantage of this formula is that the solution can be prepared extemporaneously, with as little trouble as a seidlitz powder, thus avoiding any danger of a lot of bottles of the citrate spoiling, from the usual deposit being formed.

Substitute for Citrate of Magnesium.

Dr. Polk recommends the following as a cheaper and better cathartic than citrate of magnesia:

℞ Phosphate of sodium..... ℥ i.
Water..... ℥ viii.
Syrup citric acid..... ℥ iss.
M.

Formula for Tasteless Mixture of Cod-Liver Oil.

℞ Ol. morrhuæ,..... ℥ ij.
Spts. lavend. comp..... ℥ i.
Spts. vini gallici..... ℥ i.
M.

Formulas for Cod-Liver Oil Mixtures.

The following preparations, which are very easily made, will be found in general very acceptable to patients:

℞ Ol morrhuæ,
Glycerini, āā..... ℥ ij.
Spt. frumenti..... ℥ iv.
Ol. menth. pip.....gtt. xx.
M.

℞ Ol morrhuæ,
Glycerini, āā..... ℥ iij.
Spt. lav. comp..... ℥ ij.
M.

Expulsion of Thread-Worms.

The oxyuris vermicularis, or seat-worm, may be readily dislodged from its favorite habitat in the rectum by the injection of two to three ounces of ol. morrhuæ, repeated once or twice.

Application for Burns.

M. Lebigot recommends the following mixture as having been very successful:

℞ Cape aloes,.....4 ounces.
Water.....10 "
Alcohol (90°)..... 3 "

The ingredients are to be melted together in a china plate over a slow fire, allowed to cool, and then filtered; after which three ounces more of alcohol are to be added. It is then ready for use. A table-spoonful of the mixture, mixed with a tea-spoonful of acetate of lead, and twenty tea-spoonfuls of water, constitute an excellent remedy. It is to be applied morning and evening in the burnt surface.—*London Lancet.*

Preparation of Aromatic Powder.

Mr. Joseph L. Lemberger finds the following method most convenient:

Crush the ginger and separate the fibre with a coarse sieve, then crush the cardamon and separate the capsule from the seeds, and for this purpose I find a coarsely perforated cullender the best suited; then mix the crushed ginger and cardamon with carefully selected cinnamon bark, and either with an iron mortar and pestle or drug-mill reduce to powder that will pass through a mode-

rately fine sieve; then mix with it the nutmeg previously crushed, and pass the whole through the same process of powdering. Nutmeg being very oily, resists pulverization when manipulated alone, but when mixed with the other ingredients, previously powdered, it acts very kindly. The powders absorb the oil and dry the nutmeg.

Pock-Marks.

It may be interesting to some of our readers to know that the prevention of "pock-marks," or pitting in small-pox, has engaged the attention of some of the leading physicians of Europe and America during the past few years. The following is the treatment adopted and recommended by several of these authorities:

Dr. Joseph Bell applies *lime-water liniment* to the pustules.

Bretonneau, Serres, and Velpeau puncture the pustules and cauterize them with *fused nitrate of silver* (lunar caustic).

M. Briquet employs *mercurial ointment* mixed with one-fourth part of powdered starch, either in the form of ointment or plaster.

Dr. Debout covers each pustule separately, by means of a camel-hair pencil or feather, with *collodion*, in each five drachms of which eight grains of *bichloride of mercury* have been previously dissolved.

Midavene applies *sulphur ointment*.

Nélaton formed a mask over the face with imbricated strips of *mercurial plaster*.

M. Tourrière applies, either as ointment or plaster, a mixture of

Iodide of potassium (in fine powder)	1 part.
Expressed oil of mace	2 parts.
Black resin	4 "
Mercurial ointment	8 "

Walkey uses, as "unguentum actroticum," in a similar way to the last, a mixture formed of

Mercurial ointment	1½ ounce.
Beeswax,	
Black pitch, of each	½ "
Expressed oil of mace	½ "

Mixed together by a very gentle heat.

To remove "pitting" and old "pock-marks," simple oil, pomade, or ointment, medicated with *croton oil*, and of a strength just sufficient to raise a *very slight* pustular eruption, is probably the safest and most effective and convenient of all the preparations that are employed for the purpose. It should be applied at intervals extending over several weeks, as the feelings, experience, and convenience of the party concerned may indicate, due care and caution being observed the whole time.—*Druggists' Circular.*

For Chronic Bronchitis.

℞ Copaibæ ..... ʒ iv.
Liq. potassii ..... ʒ i.
Pulv. ext. glycyrrhizæ .. ʒ ij.
Syrup. scillæ ..... ℥ i.
Ol. amygdalæ amar ..... ♏ x.
Paregoric ..... ℥ i.
Syrup of acaciæ q. s. ..... ℥ iv.
M.

Teaspoonful every 3 or 4 hours.

Formulas for Diarrhœa and Dysentery in Children.

Dr. Q. C. Smith, Cloverdale, Sonoma Co., sends us the two subjoined formulas, which he says he has found more reliable in the majority of cases than any of the prescriptions contained in the systematic treatises.

1. ℞. Fluid extract of ergot, ℥ i.; fluid extract of golden seal, ℥ ss. Mix. To small children, give from half to one tea-spoonful, at intervals of one to four hours, as the case may require. For dysentery, with bloody discharges.

2. ℞. Logwood chips, ℥ ij.; powdered cinnamon bark, ʒ i.; mix and put in a bottle with a pint of water, place the bottle in water and keep at a boiling heat for one hour, strain the liquor and bottle for use. Dose: from a teaspoon-

ful to a tablespoonful every 1, 2, 3, or 4 hours, as the case may require. For diarrhœa of children, caused by teething, warm weather, etc.—*Pacific Medical and Surgical Journal.*

Almost a Specific in Dysentery.

Pil. hydrarg.....grs. xij.
Pulv. ipecac.....grs. xij.
Gelsemini.....grs. ij.

M. Divide in 12 pills. Give one every three hours until the effect of the gelseminum is manifest in debility of the eyelids, and then discontinue. This treatment seldom fails to arrest at once the violence of the disease.

For a Diaphoretic.

Liq. ammoniæ acet.....℥ vi.
Spirits ether nitrosi.....℥ ss.
Ant. et potassæ tart.....gr. i.
Morphiæ.....gr. i.
Syr. acidi citrici.....℥ ss.
M.

Tablespoonful every three hours.

Liniment.

℞ Tinct. aconiti rad. sati....℥ i.
Chloroformi.....℥ i.
Camphoræ.....℥ i.
Rhigolene.....℥ ss.
Liq. saponis ad.....℥ iv.
M.

Sig. Apply as required with a camel's-hair pencil.

or Intermittent Fever.

℞ Quiniæ.....grs. xvi.
Hydrarg. sub. chloridi.grs. viij.
Podophylli resin.....gr. ss.
Gelsemini (Keith's)...gr. iss.
M.

Div. in pil. No. viii. Sig. One pill every hour until all are taken.

Excipient for Pills.

BY ERNEST C. SAUNDERS.

Most druggists have toiled in vain to produce a pliable pill-mass in making up such a pill as Pil. ferri comp. of the Pharmacopœia, or the following, which is very much used in some localities:

℞ Quin. sulph.....℥ i.
Ferri sulph.....℥ ss.
Acidi arseniosi.....grs. ii.
M. Pil. lx.

The above is merely given as a sample of a very difficult pill to make, as the sulphate of iron seems to spoil any mass for working. The following formula gives a very good excipient for any mass, adding toughness where needed, and forming an invaluable aid in making up any mass disposed to crumble when rolled:

℞ Pulvis tragacanthæ.....℥ i.
Glycerin. pur.....℥ i.

Mix in a mortar and transfer to an ointment jar while soft. On remaining for twenty-four hours a very tough jelly is formed, a few grains of which are sufficient to bring the most refractory mass into a pilular consistency. As it is entirely without medical effect it can be used in almost any case, and will be found very superior to ordinary mucilage.

Pill-Coating.

In the *Pharmaceutical Journal*, Mr. J. A. Cope, Derby, and Mr. J. Whitfield, F. C. S., Scarborough, give formulæ for pill-coating. The former recommends, first, to sufficiently moisten the pills (which should be perfectly round and not too hard) with a thin mucilage. One part mucilage (B. P.) and two parts water is sufficiently dense. They are then to be turned into a gallipot containing some powdered French chalk, and shake round well for a few seconds, and after lying out for a short time, again shaken round in a clean gallipot, in order to remove superfluous chalk and polish them.

Mr. Whitfield's process is similar, but instead of the mucilage he recommends a varnish composed as follows:

Common amber resin..1 to 2 drachms.
Spirit of turpentine..1 drachm.
Oil of geranium.....20 minims.
Absolute alcohol....To make 1 ounce.

The oil of geranium may be omitted or substituted by other essential oils at discretion. The pills should be made as hard as possible.

Antispasmodic Pills.

Pulv. assafœtidæ,
Pulv. camphoræ, āā ʒ vj.
Ext. belladonnæ, ℈ij.
Pulv. opii, ℈i.
Syrupi, q. s.
M.
Ft. in pil. No. clxxx.

One to be taken the first day, two the second, and so on until six are taken daily, or two or three times a day. Useful in hysterical and spasmodic nervous affections, in connection with bromide of potassium in doses of ten to fifteen grains.

Soothing Application in Herpes Zoster.

℞ Collodion, ℥i;
Morphiæ muriat., gr. viij.
M.

To be painted over the vesicles without breaking them open.

Headache after Drunkenness.

Byron recommends "sermons and soda water." The *Revue de Thérapeutique* says: Take of solution of acetate of ammonia, tincture of bitter orange-peel, syrup of bitter orange-peel, each 20 parts; water 500 parts. To be given in repeated tablespoonful doses.

Topical Application in Painful Dentition.

℞ Syrup of tamarinds, ʒ ijss.
Infusion of saffron, ℈ij.
Honey, ʒ ijss;
Tinct. (essence) of vanilla, gtt. iv.
M.

Rub gently over the gums with the finger or rag. An application of a similar character is the following:

℞ Saffron (powdered), 4 to 6 grs.
Honey, 2 to 3 drachms.

Glycerine may be substituted for the honey.

A Useful Dentifrice.

Dr. D. H. L. Hogg, of Texas, writes us that he has found liquor calcis (water of lime) very useful as a mouth-wash. It improves the gums and prevents the toothache. He has used it in private practice and personally.—*Medical and Surgical Reporter.*

Remedy for Toothache.

Carbolic acid, saturated solution; hydrate of chloral, saturated solution; camphorated tinct. of opium; fluid extract of aconite, of each an ounce; oil of peppermint, ½ ounce. Mix. Apply by saturating a pledget of cotton (or preferably a small piece of sponge), and pack closely into the cavity of the decayed tooth.—*Pacific Medical and Surgical Journal.*

Florida Water.

℞ Ol. lavandulæ, 2 drachms;
Ol. bergamot, 2 drachms;
Ol. limonis, 2 drachms;
Tinct. curcum, 1 drachm;
Ol. neroli, 1 drachm;
Ol. melissæ, 30 drops;
Ol. rosæ, 10 drops;
Alcohol, deodorized, 2 pints.

Flexible Gelatine Plaster.

℞ Isinglass, Russian, 10 ounces;
Glycerine, concentrated, 1 ounce;
Water, 3 pints.

Mix the water and glycerine, and macerate the isinglass in the mixture an hour or two, then boil ten or fifteen minutes and strain through coarse muslin; spread the mixture in successive layers, on about

four square yards of silk, in a suitable frame, allowing each layer to dry before adding the next. When dry, cut from the frame, and divide into suitable-sized pieces, and put up in rolls.

Agreeable Purgative.

℞ Magnesiæ calcinat., ʒ iss.
Aquæ, f. ℥ ij.
Syr. orgeat (or Curaçoa), f. ℥ ss.
M.

Chloroform as an Ingredient of Injections for Hydrocele.

Dr. Lubin (*L'Union Méd. de Canada*), observing the frequent lumbar pain consequent upon the use of the ordinary injections in this affection, was led to use a formula similar to the following:

℞ Tinct. iodinii comp. f. ℥ ii.
Chloroformi, f. ʒ ijss.

In a number of cases in which this mixture has been used, no pain whatever followed its injection.

Lotion for Fetid Feet.

Permanganate of potash, fifteen parts; distilled water, one thousand parts. The feet are to be washed twice a day with the lotion, then to be carefully dried and powdered with potato starch or lycopodium.—*Clinic.*—*Union Médicale.*

Waterproof Paper.

A nice article, transparent and impervious to grease, is obtained by soaking good paper in an aqueous solution of shellac in borax. It resembles parchment paper in some respects. If the aqueous solution is colored with aniline colors, very handsome paper, of use for artificial flowers, is procured.—*Tennessee Pharmacal Gazette.*

Transparent Paper.

A patent has been granted in Germany for a kind of paper with the following advantages: It is transparent, can be written on quite readily either with ink or pencil, and the design or writing can afterwards be washed off without injuring the paper. To prepare it, ordinary writing paper is first saturated with benzine, then, before the benzine has had time to evaporate, it is dipped into a drying varnish composed as stated below, or the varnish is applied with a brush or a sponge. This is the formula for the varnish:

Linseed oil (boiled and decolorized)..	20 parts by weight.
Lead filings.....	1 part "
Oxide of zinc.....	5 parts "
Venice turpentine...	½ part "

Mix and boil for 8 hours; afterwards, when cool, shake and add:

White copal resin.....	5 parts.
Sandarac.....	½ part.

The paper, when finished, is said to be useful to young students in learning to form their letters, and for many other purposes.—*Chemist and Druggist.*

Paraffined Corks.

Corks saturated with paraffine are used for corking bottles containing alcoholic or caustic liquids. Ruschhaupt prepares them as follows: paraffine is fused in a suitable vessel, the dry corks are added and immersed in the paraffine by means of a perforated cover or disk. The air is now easily expelled from the pores of the corks, which, after about five minutes, are removed and cooled; they may now be cut and bored like wax, are easily driven into the necks of bottles and readily removed, retain their smoothness, and are gas-tight throughout.—*Tennessee Pharmacal Gazette,* July 1874.

The Persian Insect Powder,

Which is largely used for the destruction of vermin, is simply the *Pyrethrum rosum*, or red-flowered pyrethrum.

Pith of Corn-Stalk for Tents.

Dr. Thomas Rivers, of Kentucky, writes to the *Amer. Med. Weekly*:—"I made a report last October to the Southwestern Kentucky Medical Society on the use of the inside soft part or pith of the corn-stalk as a substitute for the sponge-tent. Strip off the hard outside or bark, pass a stout wire (knitting-needle) through the pith, compress strongly with the thumb and fingers, then wrap tightly with a strong cord; let the cord remain three or four hours, then unwind and wrap again. Let it remain twenty-four hours, unwrap, and with a sharp knife and sand-paper an elegant-looking tent can be made.

"Whether they will answer the purpose I cannot say, as my experience with them, as yet, is too limited."

Inhalations in Asthma.

℞ Ætheris sulph. pts....30
Acid. benzoic, " 15
Bals. Peruvian, " 8

Or, according to another formula:

℞ Ætheris sulph., pts.... 2
Sp. terebinthinæ, " 15
Acid. benzoic, " 15
Bals. Peruvian, " 8

Place the mixture in a vessel having a large opening; the warmth of the hand is sufficient to volatilize the materials, and inhalations may be used four or more times a day, as occasion demands.

For Painful Hemorrhoids.

℞ Ext. hyoscyam.,
Pulv. saffron, āā.... ʒ ijss.
Plumbi acetat..... ʒ i.
Glycerole of starch.. ℥ i.
M.

Ulceration of the Nose in Scrofulous Children.

M. Galezinsky is accustomed to treat ulcerations of the cutaneous surface generally in these cases by dusting them with calomel, with appropriate internal treatment. When similar ulcerations form in the nares, he recommends similar applications, or occasionally the following ointment:

℞ Hydrarg. ox. rub....gr. iv.
Camphoræ pulv.....gr. iss.
Axungiæ..... ʒ i.
M.

Diarrhœa Mixture.

℞ Bismuth subcarb..... ʒ ss.
Cretæ præparat..... ʒ i.
Spts. lavend. comp.... ʒ ij.
Tinct. opii..... ♏ vi.
Tinct. kino..... ♏ xxiv.
Pulv. acaciæ..... ʒ i.
Aq..... ʒ vi.
Syr..... ℥ ij.
M. et sig.

Teaspoonful every hour to four hours for a child one year old.

The above prescription is recommended by Professor Lusk as a remedy for diarrhœa in children, when the passages are frequent, copious, and attended with flatulence and pain.

Otorrhœa.

M. Ménière recommends in "earache" the use of leeches, with the following solution:

℞ Aconitiæ..... .... gr. i.
Aquæ..... fl. ℥ v.
M.

In chronic otorrhœa inject the external meatus freely with tepid water, and paint once a day with:

℞ Acid. carbolic..... gr. i.
Glycerine..... fl. ʒ ij.

Three to six drops of the following solution may be allowed to fall into the ear and remain for eight or ten minutes:

℞ Zinci sulph..... gr. iv.
Glycerine..... fl. ʒ ij.
Aquæ..... fl. ʒ vi.
M.

When great vascularity of the bottom of the ear exists, or even when there is perforation of the tympanum, use,

℞ Plumbi acetat..... gr. ss ad i.
Aquæ..... fl. ʒ ss.
M.

—*The Doctor*, August 1, 1874.

Digitalis in the Treatment of Hæmoptysis.

Dr. Reboul has been in the habit of using for some time past large doses of digitalis in the treatment of hæmoptysis. The formula employed by him is as follows:

℞ Pulv. digitalis..... ʒ ss ad ʒ i.
Aquæ..... ℥ viss.

Make an infusion, and add ʒ x. syr. limonis. Dose, a tablespoonful every hour, to be suspended should nausea and vomiting supervene. This treatment is peculiarly efficacious in hæmoptysis occurring during the feverish stage of phthisis.

Anti-Syphilitic Gargle.

℞ Tinct. iodinii..... ʒ ss.
Aq. destillat..... ℥ viss.
Syr. aurantii ..... ℥ iss.
M.

Useful in mucous patches and secondary ulcerations of the lips and buccal cavity. This gargle is preferable to those containing corrosive sublimate, which blacken the teeth. If the ulcerations are rebellious, they may be touched lightly with the acid nitrate of mercury. —*Langlebert.*

Novel Dressing for Wounds and for Stopping Bleeding.

M. Vigier recommends a paste made by mixing two parts of modelling clay with one of glycerine, and so making a paste which will be found convenient as a dressing and preservative at the same time.

To Check Vomiting from Cough.

Consumptives and others suffering from paroxysms of cough frequently vomit their food in such paroxysms. Dr. Woiliez recommends swabbing the pharynx, before eating, with a concentrated solution of bromide of potassium.

℞ Pot. brom..... ʒ ij.
Aquæ destil..... ʒ iv.

—warning the patient not to cough for a few minutes after the application. The same treatment is recommended for the vomiting of pregnancy. It is said to be very successful.—*Missouri Clinical Record*, August, 1874.

Tonic in Anæmia with Constipation.

℞ Ferri sulph ..... gr. xlviij.
Magnesii calcinat .... ʒ i.
Tinct. quassiæ..... fl. ℥ ij.
Aq. menth. pip..... fl. ℥ vi.
M.

Sig.—Tablespoonful in water, three or four times a day.

Inexhaustible Smelling Salts.

In reply to the inquiry of a correspondent, the *Pharmaceutical Journal of London* furnishes a formula which was originally suggested by M. Allchin. Forty ounces of sesqui-carbonate of ammonium are broken into small pieces, placed in an air-tight jar, and 20 fluid ounces of liquor ammonia, s. g. 880, previously perfumed to taste, are poured thereon. The jar is covered, and stirred daily during the course of a week, after which the mixture should be allowed to stand one or two weeks longer. It will then be fit for bottling.

In Leucorrhœa.

℞ Cantharidis.....gr. iij.
Camphoræ.....gr. xvi.
Ext. hyoscyami...gr. x.
M.

Ft. in pil. No. x.

One to two may be taken daily, in cases of nervousness accompanied by leucorrhœic discharge.

Preserving Iron and Steel Surfaces from Rust.

A varnish for this purpose may be made of 120 parts resin, 180 sandarac, 50 gum lac. They should be heated gradually until melted and thoroughly mixed, then 120 parts turpentine added,

and subsequently, after further heating, 180 parts rectified alcohol. After careful filtration, it should be put into tightly-corked bottles.—*Journal of Applied Chemistry.*

Constipation.

℞ Hydrarg. protochld. gr. iij.
Pulv. rhei,
Pulv. jalap, āā.....gr. iss.
Div. in chart. No. x.
Sig.—One every two hours, until the desired effect is produced.

Topical Application in Toothache.

℞ Chloroformi,
Vini opii, āā.....fl ʒ ss.
Sp. menth. pip....fl. ʒ vii.
M.

Soak a piece of cotton in the mixture and place it in the painful tooth, placing another piece outside of the tooth on the gum, and a third on the jaw over the root of the tooth.

Absorbent Powder.

℞ Magnesii calcinat... ʒ ss.
Sodii bicarb.....ʒ i.
Cretæ præparat.....ʒ i. gr. xv.
Pulv. sacch. alb....ʒ ijss.
M.—Div. in chart. No. x. One to be taken half an hour before meals in acid dyspepsia.

Antispasmodic Pills.

℞ Pulv. assafœtidæ,
Pulv. camphoræ, āā. ʒ vi.
Ext. belladonnæ ...ɔij.
Pulv. opii.....ɔi.
Syrupi.....q. s.
M.
Ft. in pil. No. clxxx.

One to be taken the first day, two the second, etc., until six are taken daily or two or three times a day. Useful in hysterical and spasmodic nervous affections, in connection with bromide of potassium in doses of ten to fifteen grains.

In Hysteria.

℞ Chloride of gold and sodium. grs. iv.
Gum arabic.....ʒ i.
Sugar.....q. s.
M.

Divide into forty pills, of which one may be taken three or four times a day.

Subcutaneous Injections of Apomorphine.

M. Garville recommends the hypodermic use of apomorphine as an emetic. In cases of poisoning, where it is impossible to administer medicine by the mouth, this remedy may prove of the highest value. An injection of one-sixth of a grain in one scruple of water will produce copious emesis within five minutes.—*Philadelphia Med. Times.*

Tully's Powder.

This powder is sometimes prescribed by physicians, and is considerably used in Eastern cities.

℞ Sulphate morphine.... 1 part.
Camphor powd.....28 parts.
Precipitated chalk.....21 parts.
Liquorice-root powd...10 parts.
Mix, and pass through a fine sieve.

How to Deodorize Cocoanut Oil.

The following has been recommended: To one pound of the oil add one ounce of freshly-calcined bone-black, and half an ounce of calcined magnesia. Let it stand in a warm place, with frequent agitation, during three days. Allow it to settle down or filter through paper in a funnel provided with a double jacket holding warm water. During the maceration with bone-black, the oil must be kept warm enough to remain in a liquid state.—*Druggists' Circular.*

As so many accidents have occurred while pounding chlorates in the usual way in a mortar, the following plan for

obtaining them in a powder has been suggested. Panes of glass are dipped into a saturated solution of the chlorate, and, upon drying, the fine crystalline powder can be easily scraped off and preserved without danger.—*Tenn. Phar. Gazette.*

Sinapisms.

Some of those who noticed the receipt copied in the October number of NEW REMEDIES, of last year, may be interested in the following from an Elmira paper:—

"If you want a mustard plaster and don't want a mustard blister, please observe this bit of advice: Don't mix your mustard with the white of an egg—don't do it—for if you do, language will fail you—fury will seize you, and you will discover upon examination that that embryotic chicken mixed with a little mustard had fire enough for a full-grown game rooster. No, no, stir up that mustard with anything else, brine, vinegar, alcohol, gunpowder, or even nitro-glycerine, but shun the white of an egg as a mad dog would a pail of water. Yes, we know we told a different story some time since. We believed it then—we thought it a valuable contribution to the pharmaceutical knowledge of the country, and as such we wanted our readers to have the benefit of it. They have, and we don't overstate the case at all when we observe that one or two of them consider it altogether too much of a benefit. Why, the fact is, that mustard and the white of an egg mixed together and left alone will generate heat enough to kindle a small fire. Indeed we should not be surprised if a careful analysis of a white heat would discover that mustard and eggs were the principal constituent parts.

"A friend of ours felt the need of a mustard plaster, and we had just printed that if the mustard was wet up with the white of an egg all the beneficial results of the application could be realized without the blistering. Of course the new process was tried. The plaster applied was about the size of your hand. The portion of the person from which the cuticle was entirely removed might have been covered with a palm-leaf fan. The fact is, it spread wider, burnt deeper, bit sharper, and altogether proved the most blistering compound ever concocted in that household.

"The first information which we published on this subject we found in an exchange. The second, which is not like unto it, was conveyed to us from an individual who had taken our first statement in confidence. The first evidently was an ebullition from the brain of some crazy doctor; the last is born of experience and is worth remembering."

Apomorphin as an Expectorant.

M. Jurasz (*Gazette Hebdomadaire*, from *Centralblatt*, No. 32, 1874) suggests the use of this emetic in bronchitis, etc., in the same manner as ipecac and other nauseating expectorants are employed. His formula is as follows:

℞ Apomorphiæ chlorid...gr. $\frac{1}{5}$ ad $\frac{1}{2}$.
Aq. destillat.....ʒ iijss.
Acid. hydrochlor.....gtt. v.
Syr. simplicis.....ʒ iv.
M.

Sig.—Tablespoonful every two hours.

Each dose contains $\frac{1}{48}$ to $\frac{1}{16}$ of chlorohydrate of apomorphia. In general, after the first few doses some little nausea is observed, but vomiting is not produced. This preparation is useful when it is desired to produce a more free discharge of the mucous secretions, or where these, as is frequently the case in bronchitis, are tenacious and not easily separated.

Compound Ferruginous Powder.

℞ Ferri carb.....ʒ i.
Valerian. rad. pulv.....ʒ ijss.
M.

Div. in chart. No. xxv.

Sig.—One to five a day in chlorosis complicated by neuralgia.—Philad. *Medical Times.*

BIBLIOGRAPHY.

ARCHIVES OF OPHTHALMOLOGY AND OTOLOGY. Edited and published in English and German. By DR. H. KNAPP, M.D., and PROF. S. MOOS, M.D., in conjunction with DR. E. GRUENING, of New York, and DR. CL. J. BLAKE, of Boston. Vol. IV., No 1. New York: Wm. Wood & Co. 1874.

WITH the commencement of the fourth volume of this excellent publication, it is changed from a semi-annual to a quarterly, and Drs. Gruening and Blake added to its editorial staff. The preface to this number states that the number of pages of each issue is to vary between 112 and 160; about four-fifths of the space being devoted to original papers, the remainder to reviews of the current ophthalmological and otological literature. Several excellent plates illustrate articles in the July number, the most important papers being two reports of cases of glioma retinæ (illustrated), by Drs. Knapp, Turnbull, and Thompson; two cases of sarcoma of the choroid, by Drs. Williams and Knapp (illustrated); three cases of tenotomy of the superior and inferior recti, by Dr. Knapp; a case of paresis of the accommodation, by Dr. Schapringer; a paper on keratitis vesiculosa, with secondary glaucoma, by Dr. Pooley; two cases (illustrated) of myringomycosis aspergillina; and a case of pearly tumor (cholesteatoma) of both ears, by Dr. Chas. J. Kipp.

The price per annum is not stated.

THE AMERICAN MEDICAL WEEKLY, E. S. GAILLARD, M.D., Editor and Proprietor, is a new venture by the editor and proprietor of the well-known *Richmond and Louisville Medical Journal*, who offers to subscribers 830 octavo pages annually for two dollars. It is claimed that a distinctive feature of the new journal is to be the reviews of the pamphlet medical literature so abundant at the present day. The usual abstracts of articles in contemporary journals occupies a fair share of space. We have no doubt that its editor will make it as much of a success as its associate has become.

THE PSYCHOLOGICAL AND MEDICO-LEGAL JOURNAL. Conducted by WILLIAM A. HAMMOND, M.D., Prof. of Diseases of the Mind and Nervous System in the University of the City of New York, assisted by T. M. B. CROSS, M.D., assistant to the above chair. New York: F. W. Christern. July, 1874.

THIS is, in fact, a continuation of the *Psychological Journal*, until recently published by D. Appleton & Co. as a quarterly, and now appearing as a monthly of seventy-two pages.

The first number contains a paper by the Editor, on the Effects of Alcohol on the Nervous System [previously published in the *The New York Tribune*]; a translation by Dr. D. F. Lincoln of a paper by Prof. Moritz Benedict, on the Laws of Topographical Diagnosis in Chronic Diseases of the Nervous System; Proceedings of the New York Neurological Society [of which the Editor is President], and book reviews and notices.

The Journal is to be devoted to the publication of original papers; the proceedings of the New York Neurological Society, and Medico-Legal Societies; and the reviewing of current literature. Subscription price, five dollars a year; single numbers, fifty cents.

THE LABORATORY. A Monthly Journal of the Progress of Chemistry, Pharmacy, Medicine, Recreative Science, and the Useful Arts. Boston: Wm. W. Bartlet & Co.

THIS is a very readable journal of twelve pages (a considerable proportion of the space being occupied by the title and advertisements), and appears to be mainly devoted to pharmacy and extracts from *The Sanitarian* and from the "Practical Receipt" column of exchanges. Price, half-a-dollar a year.

ELECTRO-THERAPEUTICS. A Condensed Manual of Medical Electricity. By D. F. LINCOLN, M.D., Physician to the Department of Diseases of the Nervous System, Boston Dispensary. Philadelphia: Henry C. Lea. 1874. Pp. 186.

THIS book is convenient in size, its descriptions of methods and appliances are sufficiently complete for the general practitioner, and the chapters on Electro-physiology and diagnosis are well written and readable. For those who wish a handy-book of directions for the employment of galvanism in medicine, this will serve as a very good and reliable guide.

ESSAYS ON CONSERVATIVE MEDICINE AND KINDRED TOPICS. By AUSTIN FLINT, M.D., etc. Philadelphia: Henry C. Lea. 1874.

THE ease and grace with which Dr. Flint has written upon purely medical topics is well appreciated by most physicians throughout our country. In these essays, which from their nature admit of more freedom of style than the subjects which have chiefly occupied his pen, the writer gives us some of the best examples of his power. Although some of the papers relate to subjects now somewhat trite, they all repay the reading, and the last of the eight, on Divine Design as exemplified in the Natural History of Diseases (an address read before the Young Men's Christian Union in Louisville, Ky.), is of itself well worth the price of the whole. Messrs. Lea & Co. have issued the book in their best style.

THE STUDENT'S GUIDE TO MATERIA MEDICA, in accordance with the latest issue of the British Pharmacopœia. By JOHN C. THOROWGOOD, M.D. London. Lecturer on Materia Medica at the Middlesex Hospital, etc. Philadelphia: Lindsay & Blakiston. 1874. Pp. 318, 8vo.

WE have before noticed works belonging to "The Student's Guide Series" of which this is one, and have remarked the thoroughness with which the subjects have been treated when the portable size of the volumes is considered. Condensed manuals of the subjects taught in our medical schools seem to be almost a necessity for the student who during the lecture season does from ten to twelve hours' work a day exclusive of reading, and the books of this series appear to be as well adapted to this want as any with which we are acquainted.

This present work, as its title indicates, is especially fitted for the British student, but, until one adapted to our own Pharmacopœia appears, the book of Dr. Thorowgood will be a valuable addition to the library of the American student as well.

A PRACTICAL TREATISE ON THE DISEASES OF WOMEN. By T. GAILLARD THOMAS, M.D., Professor of Obstetrics and Diseases of Women and Children in the College of Physicians and Surgeons, New York, etc., etc. Fourth edition, thoroughly revised, with one hundred and ninety-one illustrations on wood. Philadelphia: Henry C. Lea. 1874.

THREE large editions of this work have already been exhausted within five years, and translations have been and are about being made into German, French and

Italian. The author claims that he has, therefore, taken especial pains in the labor of revision, and has endeavored to bring the work up to the most advanced state of gynæcological science. We would regret that we have not time to make a careful review of the changes that have been made from the preceding edition, if we did not feel that the author's reputation for thoroughness and painstaking work is of itself a sufficient guarantee that all has been done that has been required to make the work complete. As regards the general character of the work, no statements are needed, since former editions can be found wherever in this country gynæcology is made a branch of practice.

CYCLOPÆDIA OF THE PRACTICE OF MEDICINE. Edited by DR. H. VON ZIEMSSEN, Professor of Clinical Medicine in Munich, Bavaria. Vol. I. ACUTE INFECTIOUS DISEASES, by PROFESSOR LIEBERMEISTER, in Tübingen, PROFESSOR LEBERT, in Breslau, DR. HAENISCH, in Greifswald, PROFESSOR HEUBNER, in Leipzig, and DR. OERTEL, in Munich. Translated by DRS. R. H. FITZ and CHAS. PUTNAM, of Boston; DR. ARTHUR VAN HARLINGEN, of Philadelphia; DR. JAMES T. WHITTAKER, of Cincinnati; DR. EDWARD W. SCHAUFFLER, of Kansas City, and DRS. FRANCIS DELAFIELD, HORATIO BRIDGE, THOMAS E. SATTERTHWAITE, J. HAVEN EMERSON, NORMAND SMITH, and LEWIS A. STIMSON, of New York.

ALBERT H. BUCK, M.D., New York, Editor of American Edition. New York: William Wood & Co. 1874.

WE have had the pleasure of looking over the advance sheets of the first volume of this forthcoming series, and have been in every way pleased by the completeness with which the subjects have been treated, and the admirable manner in which the work of translating and editing has been accomplished. If the balance of the work furnishes as pleasant reading as the introductory chapter and the chapter on abdominal typhus do, there are few subscribers who will not have read each volume through long before the time arrives for the appearance of its successor. The following is the list of subjects in this first volume:—Abdominal Typhus, Prof. Liebermeister; Exanthematous and Recurrent Typhus, Cholera, Prof. Lebert; The Plague, Prof. Liebermeister; Yellow Fever, Dr. Haenisch; Dysentery, Prof. Heubner; Diphtheria, Dr. Oertel; Varicella, Measles, and Scarlatina, Dr. Thomas; Variola, and Varioloid, Dr. Curschmann; Erysipelas, Miliary Fever, Dr. Zuelzer; Malarial Infection, Prof. Hertz; Epidemic Cerebro-Spinal Meningitis, Prof. von Ziemssen. Each chapter is preceded by a list of the authorities whose works serve as a basis of the article, and the typography and paper are excellent. Care appears to have been taken to eliminate the peculiarities of the German construction without changing the meaning of the writer.

The success which followed the publication of Holmes' System of Surgery and Reynolds' System of Medicine, fully demonstrated the necessity for Encyclopædic works of this nature. Admirable as many of our text-books in general medicine are, in the present state of the science they bear about the same relation to the subject that the student's conspectus or hand-book does to the works of Watson, Flint, or Aitken. No text-book, however complete, can answer the needs of the physician in general practice who is anxious to do the best for both his patients and himself; and the study of monographs becomes necessary to his success.

To the physician who has not the facilities for examining for himself the shelves of the bookseller, it will be evident that to have the services of so judicious an authority as Professor Ziemssen in the selection of his monographs will result to his advantage.

Thurston Library